

ZERORATING

**Do hard rules protect or harm
consumers and competition? Evidence
from Chile, Netherlands and Slovenia**

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INTRODUCTION

Zero rating, the practice of not charging data to a mobile broadband subscriber's contract, is emerging a potent issue in telecom policy. While zero rating of mobile subscriptions has been extant for almost two decade with SMS, MMS, Blackberry Messenger, and WAP services¹, with subscriptions related to smartphones for almost a decade years, and in variant of forms for telephony pricing for much longer with little to no controversy.

Zero-Rating has become increasingly popular in both developed and developing countries and plays a particularly important role in developing countries, where the costs of mobile data services are higher relative to per capita incomes. About half of all mobile operators employ the strategy in some way.² In fact network operators have used the equivalent of such strategies to incentivize both subscribers and content providers to be part of their network for well over a century.

In the last two years, however, zero rating become a flashpoint in the net neutrality debate.³ Whether a country allows it has become a litmus test for net neutrality supporters to certify the strength of the rules. At issue is whether operators and their customers should have the freedom to create contracts for mobile broadband service based on their preferences and constraints or whether mobile Internet service must be sold in a so-called "neutral" fashion where the only differentiating parameters are speed and megabytes. As the Internet increasingly transitions to mobile platforms, and the likelihood that the next two third of world who yet to come online will do so via mobile, who and how to provision mobile bandwidth has is an important, complex issue.

This paper examines the arguments for and against zero rating and the charges that zero rating hurts competition and consumers. It formulates 5 assertions based on the alleged harms and attempts to test them with empirical analysis from quantitative and qualitative perspectives. The paper reviews the leading database of financial information of the world's mobile operators to see whether the impact of zero rating may be observed, for example with undue financial benefits earned by operators through the use of zero rating. To understand the issue more closely, the paper reviews zero rating in Chile, Netherlands, and Slovenia, countries which have banned some forms of the practice. The paper then examines whether there is harm to consumers and innovation by reviewing a leading database of mobile application market data. The paper concludes by suggesting reasons why zero rating is maligned in telecom policy debates.

¹ "Zero Rated WAP Traffic," *Geekzone*, September 6, 2005, <http://www.geekzone.co.nz/forums.asp?topicid=4895>.

² Anne Morris, "Report: 45% of Operators Now Offer at Least One Zero-Rated App," *FierceWirelessEurope*, July 15, 2014, <http://www.fiercewireless.com/europe/story/report-45-operators-now-offer-least-one-zero-rated-app/2014-07-15>.

³ John Carbone, "Zero-Rating The Internet, or Why You Should 'Unlike' Facebook: A Partnership of a Different Color.," *Medium*, October 2, 2013, https://medium.com/@john_carbone/zero-rating-the-internet-or-why-you-should-unlike-facebook-ae9f7ec13faa.

Arguments against zero rating

A recent white paper by net neutrality advocacy organization Public Knowledge provides an overview of the arguments against zero rating.⁴ It argues that zero rating violates net neutrality, the principle that all data must be treated equally, and given that zero rating is not a neutral practice, it must be banned. In its place, they assert that only “Affordable Full Access” is acceptable. They claim as well that a zero rated offer is the operator’s, not users, choice, and therefore zero rating is discriminatory and wrong. They declare that zero rating limits a user’s choice, and that he will only choose zero rated services. They observe that zero rating limits innovation of third party applications and services.

Their opposition to zero rating might also be understood in relation to their advocacy against data caps. Public Knowledge explains,

Zero-rating and data caps may lead to a backslide into the world of scarcity. Data caps have been used as limitations on content usage and designed to create artificial scarcity. This type of scarcity is harmful because of its affect on a user’s behavior, specifically regarding users’ fear of going over their caps. Playing on users’ fears of exceeding their data caps makes cap-exempt regimes more attractive which incentivizes the content providers to pay for prioritization. The potential for data cap abuse in discriminatory ways may outweigh any purported benefit.⁵

A related advocacy paper calls on the Federal Communications Commission to outlaw data caps as part of its new Open Internet Rules.⁶

Though no money changes hands in the bulk of zero rating offers, detractors are concerned about “pay to play” situations, in which they claim startups can’t get Internet access, but we have not been able to find such a case. A type of zero rating is called sponsored data in which a content provider subsidizes the cost of a user’s subscription. A key application for sponsored data is health care education and delivery. A health provider wants to ensure that low-income pregnant women watch a series of pre-natal videos, a preventative form of health care that improves infant and mother outcomes. Similarly the health care provider is willing to subsidize the entire mobile subscription to encourage adoption of preventative health care and monitoring tools. The cost of avoiding an adverse health event is well worth the price of a broadband. The patient benefits with better health outcome and the health care provider reduces costs.

Another concern is that zero rated programs such as Facebook’s Internet.org will create parallel Internets and users will never venture outside of the social network. This situation is examined in the country case studies.

It should be noted that not all net neutrality supporters believe zero rating to be problematic,⁷ however the issue appears to be a growing schism between those who favor soft and hard approaches.

⁴ Carolina Rossini and Taylor Moore, “Exploring Zero-Rating Challenges: Views From Five Countries” (Public Knowledge, July 2015), <https://www.publicknowledge.org/documents/exploring-zero-rating-challenges-views-from-five-countries>.

⁵ Ibid

⁶ Danielle Kehl and Patrick Lucey, “Artificial Scarcity - How Data Caps Harm Consumers and Innovation” (New America, 2015), https://static.newamerica.org/attachments/3556--129/DataCaps_Layout_Final.b37f2b8fae30416fac951dbadb20d85d.pdf.

⁷ Mike Godwin, “What the ‘Zero Rating’ Debate Reveals About Net Neutrality,” *Reason.com*, April 8, 2015, <http://social.reason.com/archives/2015/04/08/nothing-but-net>.

Arguments in favor of zero rating

Some key assumptions in the arguments against zero rating are worth examining. At its heart, net neutrality implies a pure, ideal way in which a user connects, navigates and learns on the Internet, free from influence and intermediaries. However this notion of a neutral experience conflicts with the established theories of the sociology of knowledge⁸ which posit that knowledge is mediated by social constructs. Neutrality is impossible because the Internet, like any medium, is by definition *mediated* or conveyed by intermediaries.⁹ Calling a longing for a “paradise lost”¹⁰ of a golden age of Internet neutrality that never was, net neutrality advocate Alejandro Pisanty critiques the excessive idealism of the net neutrality movement in favor of practical measures. In any case, one shortcoming of net neutrality is that it overwhelmingly focuses on internet service providers (ISPs) but fails to recognize the influence and non-neutral practices of global platforms, which have significant market power, users bases in the hundreds of millions (if not billions), and far high profitability and market shares than ISPs.

One proof point against neutrality is the popularity of walled gardens. Apple’s hardware and software designs are part of a tightly-controlled, vertically integrated, closed product ecosystem. Apple would not exist if there was the equivalent of network neutrality for computer hardware software. Similarly “curated” Internet experiences are demanded by users, including The J Net for conservative Jews which blocks offending content; Islamic Mobile¹¹ which offers zero rated mobile access to the Koran and other religious content for Muslims; broadband packages bundled with software and support tailored for the elderly in Denmark;¹² zero rated mobile plans for the World Cup,¹³ and mobile plans designed for grandmothers to message with the grandchildren via WhatsApp¹⁴

The assertion that all plans must be “affordable full access” assumes that users value all data equally. But many would gladly substitute “low cost limited access” without feeling any twinge of discrimination; rather they feel it is their right. Consumers increasingly demand the ability to pick and choose among the cable channels and eschew paying for the full packages; they see no difference with internet access.

For many users, selecting a provider purely on speed and price is not only difficult, it’s boring. It is preferable for some users to select a plan based upon brand identity,¹⁵ cross-marketing, cross-selling, a phone, features, benefits, or functionality they value. In this way, users are looking for operators who best cater to their needs, not necessarily the provider that provides the most data at the lowest price.

For many users, their choice of phone is personal statement, and though they may buy the newest model, they use only a fraction of its functionality, perhaps only a third of its

⁸ Karl Mannheim. *Ideology and utopia: an introduction to the sociology of knowledge*. Translated by Louis Wirth and Edward Shils. New York: Harcourt, Brace and Company; London: Kegan Paul, Trench, Trubner & Co., 1936

⁹ Christopher Yoo, “Free Speech and the Myth of the Internet as an Unintermediated Experience,” *George Washington Law Review*, Vol. 78, Pg. 697, 2010 University of Pennsylvania, Inst for Law & Econ Research Paper No. 09-33 University of Pennsylvania Law School, Public Law Research Paper No. 09-26 TPRC 2009, September 2009, 77.

¹⁰ Comments by Alejandro Pisanty: “Dynamic Coalition on Network Neutrality” (The Internet Governance Forum, September 2, 2014), <http://www.intgovforum.org/cms/174-igf-2014/transcripts/1923-2014-09-02-dynamic-coalition-on-network-neutrality-room7>.

¹¹ “Free Islamic Ramadan App from Amadan Omantel,” OmanTel, accessed August 5, 2015, http://www.omantel.om/Omanweblib/Individual/Mobile/islamic_mobile_app.aspx?L.

¹² NemPC or EasyComputer is a bundled service designed for the elderly in Denmark sold as a monthly subscription. It consists of a (1) software package that becomes a “skin” for computers and devices optimized for the key digital activities for the elderly in Denmark (official Danish government websites for health, home care, pension, digital signature etc) and the national banking security for financial applications, NEMID (Easy Identification); (2) 24/7 call center and online tech support; (3) a broadband connection; (4) connected computers and devices. All the items can be purchased a la carte. The service is popular and expanding to similar segments in other countries.

The packages comes with enhanced security features: “NemPC,” accessed August 12, 2015, <http://nempc.dk/produkter.php?page=nempc>.

¹³ <http://www.fonearena.com/blog/131758/rcom-offers-free-access-to-twitter-during-world-cup-2015-introduces-data-recharge-offers.html>

¹⁴ <http://www.hyderabadass.com/2014/02/20/my-indian-grandmother-convinced-me-to-download-an-app-that-just-sold-for-19-billion/>

¹⁵ Virginia Postrel. *The Substance of Style: How the Rise of Aesthetic Value Is Remaking Commerce, Culture, and Consciousness*. Harper Perennial, 2004.

features,¹⁶ meaning that a large data plan is not always necessary. Others may have a more standard phone, but use it like a workhorse. Offers such as the zero rated version of WhatsApp¹⁷ by EPlus, a leading Germany MVNO, offers free WhatsApp even when the user has no balance on the account.

Some have no interest to access all internet content, even if it is free. A number of users consider the Internet a mecca for pornography, gambling, piracy, and other digital vice. Many are legitimately concerned that mandated all or nothing offers put them at risk to have their security and privacy compromised, particularly for malware that may be embedded in certain content. Such users may also buy subscriptions that block ads because they do not want to come in contact with offending tracking software, as well as to reduce data consumption from advertisements. It follows that not all broadband offers, zero rated or not, appeal to users equally. Baseball lovers might not buy a zero-rated mobile offer tailored for the football fan, but they are not necessarily worse off because those offers are in the marketplace.

There are some valuable reasons to support zero rating which include but are not limited to positive spillovers, network effects, market competition, and lower prices. Simply put, zero rating is a way to increase the number of users, which increases the value of the network.¹⁸ There is a value to get more people on the network, whether it's through universal service, broadband subsidies, or zero rating. Proponents of corporate social responsibility may recognize zero rating as one way a company makes its product more affordable and available to disadvantaged communities. Orange describes it as one of their CSR initiatives.¹⁹ Proponents of government subsidies may see a role for zero rating, as they know public money is not unlimited.

Eisenach observes the double benefit stimulated by zero rating is that users are both content consumers and creators (e.g. Facebook, Wikipedia, Twitter etc).²⁰

Zero rating can also be a driver of competition in the marketplace and is a model most frequently used by entrant operators. As the case studies will show, zero rating is generally deployed by mobile virtual network operators (MVNOs) and resellers. As they cannot differentiate on network quality or price, they only have marketing and customer service. Zero rating becomes increasingly important for them both to establish themselves against incumbents, and perhaps to offer zero rated forms of customer service applications, similar to an 800 toll free number for support.

Zero rating is a type of price differentiation, the practice of offering the same or similar product to different segments and different prices. Network industries, such as broadband networks, have high upfront costs which are generally fixed for a large set of users. Once established, the cost of incremental output declines. It makes sense, therefore, to charge users with lower willingness to pay a discount, and thus cover the overall costs. Yet price differentiation occurs in industries with low-barriers to entry as well, which led William Baumol to conclude that competition forces firms to adopt price differentiation.²¹ In many cases, firms cannot enter the market without it.²²

¹⁶ Leopoldina Fortunati and Sakari Taipale. The advanced use of mobile phones in five European countries. The British Journal of Sociology Volume 65, Issue 2, pages 317–337, June 2014
<http://onlinelibrary.wiley.com/doi/10.1111/1468-4446.12075/abstract>

¹⁷ "WhatsAppen Ohne Guthaben Und Ohne WLAN.," *Eplus*, accessed August 7, 2015, <https://www.eplus.de/WhatsApp>.

¹⁸ Jeffrey Eisenach, "The Economics of Zero Rating," Nera Economic Consulting, (March 2015),
<http://www.nera.com/content/dam/nera/publications/2015/EconomicsofZeroRating.pdf>.

¹⁹ "Committed to Europe - Ensuring an Open Internet for All," *Orange*, April 2015,
http://www.orange.com/en/content/download/30121/838284/version/2/file/Orange_open_internet2015.pdf.

²⁰ Supra

²¹ Baumol, William J., "Regulation Misled by Misread Theory - Perfect Competition and Competition-Imposed Price Discrimination" (AEI-Brookings Joint Center 2005 Distinguished Lecture Presented at the American Enterprise Institute, September 22, 2015), http://www.aei.org/wp-content/uploads/2014/03/-regulation-misled-by-misread-theory_105820523401.pdf.

²² Baumol explains, "Not only will each firm be forced to adopt discriminatory prices, but each firm is likely to be forced to adopt a unique vector of prices, each of which is dictated by the market. Thus, this paper seeks to show why price

It is puzzling why price differentiation is so maligned for mobile broadband access and yet embraced, if not demanded, in many other areas. An eminent example is differential prices for medicines, particularly in developing countries. A recent study²³ by the British government observes,

Adapting drug prices to the purchasing power of consumers in different geographical or socioeconomic segments could potentially be a very effective way to improve access to medicines for people living in low and middle-income countries. A well-implemented differential pricing system could also lead to increase in sales for pharmaceutical manufacturers.

Price differentiation is commonplace in ticket sales for movies, sports, and cultural events. For example discount tickets for students and the elderly are a matter of course, as are reduced prices for off-peak performance times. With regard to transportation, whether bus, plane, train, or ferry, reduced ticket prices are also offered to certain segments of the population. Additionally there are discounts for early purchase, off peak purchase, and so on. Many plan their visits to restaurants to take advantage of early bird specials, late night specials, half-priced happy hour, and so on.

Even the US Federal Trade Commission²⁴ recognizes that loss leader pricing strategies can be competition enhancing, the practice of selling one product at below cost to stimulate related products and services. For example, supermarkets may stock bread and milk at or below cost but earn revenue on other items. Pubs may sell low-priced food but earn a profit on alcohol. Many establishments may offer low cost entertainment but earn revenue on refreshment.

Similarly the freemium²⁵ model is widely practiced in digital industries. This consists of a free digital offer for software, media, games, or other service, but a charge or premium charged for special features, increased functionality, or virtual goods. LinkedIn, Amazon, online newspapers, and countless other companies offer freemiums. It is not logical that such companies should be allowed to offer for free—or zero rate²⁶—certain aspects of their service to stimulate adoption and yet broadband providers cannot.

discrimination may occur—and may occur frequently—not despite relative ease of entry (or other competitive pressures) but because of it. In fact, I will show that in highly competitive markets, firms may have no choice: Competition can force them to adopt the vector of profit maximizing discriminatory prices. Moreover, the second central proposition of the paper argues that, in equilibrium, these discriminatory prices are not haphazard in their welfare properties but will generally constitute a Ramsey optimum—satisfying the second-best welfare attributes of revenue constrained economic welfare. Neither conclusion means that the public interest requires all industries that employ discriminatory prices to be exempted automatically from regulation. But it does imply the converse: that such industries should not automatically be deemed appropriate objects of regulatory oversight.”

²³ Prashant Yadav, “Differential Pricing for Pharmaceuticals: Review of Current Knowledge, New Findings and Ideas for Action” (MIT - Zaragoza International Logistics Program Zaragoza Logistics Center, August 2010), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/67672/diff-pcing-pharma.pdf.

²⁴ Federal Trade Commission and Patrick DeGraba, *Volume Discounts, Loss Leaders, and Competition for More Profitable Customers* (Pennyhill Press, 2013).

²⁵ Lukin, Jarid, “Jarid Lukin (@jblukin) | Twitter,” November 7, 2014, <https://twitter.com/jblukin>.

²⁶ Michael Katz, comments: “Should Wireless Technologies Be Regulated Differently?,” ISOC-DC TV - Live Events, (October 15, 2014), <http://www.isoc-dc.org/isoc-dc-tv/>.

ANALYSIS

This paper has covered arguments for and against net neutrality. This section discusses mobile operators' financial performance in specific countries and the issue of Internet traffic at exchange points and the backbone. Zero rating comprises one element of an operator's sales and marketing strategy which it uses to earn revenue. Such revenue is necessary to be viable to make network investments and upgrades. Thus the ways in which bandwidth is paid—whether by end users, content/application providers, or both—is both important and complex.

The analysis attempts to test the following assertions made by the opponents of zero rating.

1. The operator that offers zero rating will win market share.
2. The zero rated service will win market share.
3. The presence of zero rating will preclude the emergence of new applications and services.
4. Users do not go to non- zero rated content. If Facebook is free, they don't venture beyond it.
5. Operators that zero rate their own content foreclose other content.

This section provides an overview of a large financial database for mobile operators and then drills down to three countries which have specifically banned zero rating practices. Case studies are offered to describe the factors which emerged to make zero rating illegal. Thereafter a brief review of the tests of harm is offered. Finally the assertions of zero rating detractors are tested using data on mobile applications. The Merrill Lynch Bank America Wireless Matrix is a database of collected publicly available financial statements from the world's mobile operators collated and organized by country with on a set of metrics over a period of time. For some measures data is not available, so that table is blank for the particular country.

Financial Analysis

The data examined covers the period 2007 to 2013. The analysis is started in 2007, the year in which the iPhone was launched and because it marks the shift to the modern era of broadband data subscriptions sold for smartphones. We focus on Year on Year (YoY) increments and assume that user demand for digital service will drive the purchase of zero-rating contracts and interest to access sites.

It should be noted that some data, particularly for developing countries may have been collected or estimated with heterodox methods and may be inconsistent or incomplete. We note any items that we believe to be material.

The following countries were chosen because of their dynamic emerging economies, fast development of mobile services, the existence of zero-rating contracts, and in some cases, the presence of net neutrality rules. For the data set, we tried to identify per country whether zero-rating was implemented, the correlation with the year in which smartphones were introduced to the local market, and the type of tariffs available.

The block of Latin America countries (Argentina, Brazil, Chile, Colombia, Mexico, and Peru) in the study share a common geographical location and multiple similar cultures, however the history of mobile networks is quite different in each and their net neutrality policies.

Argentina is a country with one of the longest-running commercial mobile network (1989), with the use of smartphones and data contracts established around 2010-2011.

Brazil and Mexico follow with similar numbers. The other countries have been able to fast forward their assimilation to digital services in the last three of four years.

As shown in table 1, the some countries had years of continuous expansion but others such as Colombia and Peru, the saturation of the urban market has reduced expansion. Mature markets such as Brazil and Argentina are still growing, but at low rates.

For comparison a set of Africa countries were selected: Algeria, Egypt, Nigeria and South Africa. They have been chosen because of the faster development of mobile networks, adoption of mobile payments, and clear drive towards the generalized mobile technology for both private and public use.

South Africa is one of the African countries with the oldest mobile networks, followed closely by Egypt and Nigeria. The rapid adoption and success of mobile networks in Africa is well documented,²⁷ though it appears that hyperfast growth has slowed since 2010. Growth in subscribers remains above 10% per year.

The explosion of mobile networks in Latin America and Africa parallels a reality where a significant proportion of population still lacks basic access to food, clothing and shelter.²⁸

	%	CY07	CY08	CY09	CY10	CY11	CY12	CY13
Latin America	Argentina	32.7%	30.2%	15.0%	20.7%	21.9%	18.9%	18.0%
	Brazil	27.3%	20.8%	9.1%	10.0%	11.9%	6.3%	1.3%
	Chile	29.4%	16.7%	-5.9%	17.1%	15.1%	10.3%	5.0%
	Colombia	22.8%	3.8%	-1.9%	7.3%	14.7%	7.5%	4.4%
	Mexico	22.3%	11.6%	3.7%	10.0%	0.4%	9.1%	-1.2%
	Peru	31.5%	22.3%	6.7%	13.7%	13.3%	10.1%	8.7%
Africa	Algeria	14.9%	3.3%	-1.4%	1.9%	12.5%	15.2%	3.7%
	Egypt	31.2%	30.9%	9.5%	6.8%	-1.0%	4.7%	4.5%
	Nigeria	56.4%	26.8%	21.6%	-3.5%	31.4%	6.4%	4.6%
	South Africa	16.0%	5.4%	9.5%	12.4%	4.2%	4.2%	-1.8%

Table 1: The growth of subscribers Year to Year (YoY) in the period 2007 to 2013.

One interpretation of table above is that as adoption slows, incentives such as zero rating can help get more people on the network. It might also reflect a point of diminishing marginal returns. All of those who have had the wherewithal to adopt mobile broadband to date have done so. In order to get the next tranche on board requires a stimulation to demand, either in the form of incentive (lower price, zero rating etc) and/or increase in the user’s interest, skills etc. It might be observed that zero rating offers a self-reinforcing way to educate new users about the Internet; they get a free trial to do something they haven’t used before. Getting new customers on the network also helps to cover costs and provide revenue for further investments.

Table 2 is a summary of the mobile network operators in the regions studied. All these companies are registered in local and international stock markets and many have strategic partnerships with telecom operators from outside the region such as Telefonica, Telecom Italia and others.

²⁷ GSMA. "Women&Mobile: A Global Opportunity - A Study on the Mobile Phone Gender Gap in Low and Middle Income Countries." London, UK: GSMA Development Fun -Cherie Blair Foundation for Women, 2010. http://www.gsmworld.com/images/mwomen_pr_assets/women_mobileReport.pdf.

²⁸ GSMA, and Deloitte. "Brazil Mobile Observatory." London: GSMA, 2012. http://www.gsma.com/spectrum/wp-content/uploads/2012/10/gsma_brazil_obs_web_09_12-1.pdf.

Country	Telecom providers
Argentina	Telecom Argentina (TI), Movistar Argentina (TEF), Movicom (BLS), Claro (AMX),NIHD
Brazil	Vivo (Telefonica), TIM Brazil (TI), Claro Brazil (AMX), Oi (PT), NIHD, Other
Chile	Movistar Chile (TEF), Entel Chile, Bellsouth (CHL), Claro Chile (AMX)
Colombia	Comcel (AMX), Movistar Colombia (TEF),Tigo Colombia (MICC)
Mexico	Telcel (AMX), Iusacell, Movistar Mexico (TEF), Unefon, NIHD
Peru	Movistar Perú (TEF), Claro Perú (AMX) ,BellSouth, Nextel
Algeria	Djezzy, Mobilis, Ooredoo
Egypt	ECMS (Mobinil), Vodafone, Etisalat Egypt
Nigeria	MTN, Airtel (Bharti), Globacom, Etisalat, Others
South Africa	Vodacom, MTN, Cell C, Telkom

Table 2: Mobile providers by country.

Although the growth is impressive in the countries selected, the use of contracts differ according to local conditions. There are many niche markets depending which sector of the population is experiencing fast economic growth.

Strategies for sales and marketing differ and impact service revenue growth. Because of the diverse economies and inflation rates, we compare the percentage of year to year expansion in the local currency. For all countries in the study, service revenue as a whole has been declining for years. This is part of a larger global trend for operators which are transitioning from a paradigm of selling voice and messaging to one of selling data.

The shift is not necessarily profitable for operators, even though the amount of data consumed by end users is generally increasing. Net neutrality advocates assert that operators should simply compete on data, but most operators face heavy price competition because of multiple providers in the marketplace. Additionally their largest source of revenue, voice and messaging, has been significantly reduced by the proliferation of free alternatives such as Skype, WhatsApp, Facebook Messenger etc. Thus net neutrality rules are a double-whammy for operators; not only are they not allowed to manage their networks with increasing data demands, they cannot make offers to cover their costs.

		CY07	CY08	CY09	CY10	CY11	CY12	CY13
Latin America	Argentina	32.7%	30.2%	15.0%	20.7%	21.9%	18.9%	18.0%
	Brazil	27.3%	20.8%	9.1%	10.0%	11.9%	6.3%	1.3%
	Chile	29.4%	16.7%	-5.9%	17.1%	15.1%	10.3%	5.0%
	Colombia	22.8%	3.8%	-1.9%	7.3%	14.7%	7.5%	4.4%
	Mexico	22.3%	11.6%	3.7%	10.0%	0.4%	9.1%	-1.2%
	Peru	31.5%	22.3%	6.7%	13.7%	13.3%	10.1%	8.7%
Africa	Algeria	14.9%	3.3%	-1.4%	1.9%	12.5%	15.2%	3.7%
	Egypt	31.2%	30.9%	9.5%	6.8%	-1.0%	4.7%	4.5%
	Nigeria	56.4%	26.8%	21.6%	-3.5%	31.4%	6.4%	4.6%
	South Africa	16.0%	5.4%	9.5%	12.4%	4.2%	4.2%	-1.8%

Table 3: Service Revenue Growth. % calculated on local currency.

Our table 4 shows a different perspective, but data is available only for a few countries. While total service revenue is declining, average revenue *per user* (ARPU) is growing. This demonstrates that users want to access to more applications and services with their mobile broadband subscription. It would seem to be the proof that assertion #4 is false, that users do not go to non- zero rated content. This chart clearly shows that subscribers

are increasingly paying for data subscriptions. However this chart does not tell us what percentage of any operator’s subscriber base has been transitioned to data packages. To be sure, operators want to increase the value of any single customer, but the rate of success likely varies across operators and with the sophistication of their networks. It is also important to note that these figures are not necessarily synchronized with profitability. Though any one customer could be more profitable for an operator with a data package, it is not necessarily the case that selling data is more profitable for operators as traditional SMS or voice was before.

		CY07	CY08	CY09	CY10	CY11	CY12	CY13
Latin America	Argentina	18.8%	24.9%	28.9%	31.4%	36.6%	40.8%	45.8%
	Brazil	7.4%	9.2%	12.4%	15.7%	18.7%	22.5%	26.3%
	Chile	N.A	N.A	N.A	N.A	N.A	N.A	N.A
	Colombia	N.A	N.A	N.A	N.A	N.A	N.A	N.A
	Mexico	13.3%	15.9%	20.3%	24.2%	29.7%	35.0%	39.0%
	Peru	N.A	N.A	N.A	N.A	N.A	N.A	N.A
Africa	Algeria	N.A	N.A	N.A	N.A	N.A	N.A	N.A
	Egypt	4.6%	6.6%	8.5%	9.8%	11.0%	12.5%	13.7%
	Nigeria	3.5%	4.0%	5.0%	6.0%	7.4%	21.0%	22.7%
	South Africa	9.9%	12.8%	15.6%	19.0%	22.0%	26.4%	30.2%

Table 4: Monthly ARPU YoY Growth.

Smartphones in 2007 were extremely expensive for users of the countries in this analysis. However smartphones have significantly fallen in price (as well as used smartphones have become available), something that helps make data packages more affordable. Though some data is missing the following table, it shows the relative success that operators’ have made in transitioning to selling data instead of voice and SMS. Operators in these countries still earn more than half of their revenues from voice and SMS, in many cases on 2G infrastructures. This presents a challenge and opportunity.

The challenge is meeting the expectation of the international community that operators should deploy broadband infrastructure, even though relative demand for broadband is low and the revenue to support has yet to be earned. The opportunity is finding the business model to bridge the gap. This is where zero rating, along with other types of offers come into play.

To explain the situation, a column showing the percentage of the population using the Internet is added. Though the 2014 operator data is not available, the comparison between the 2013 percentage of data service revenues compared to the 2015 estimated internet adoption provides some indication of the opportunity for operators to sell mobile broadband to people who have yet to adopt the Internet, provided offers can made in a compelling way. In the countries below, at least a quarter, if not half, of the population has yet to come online. This population generally represents people of lower income and perhaps education, so it is of particular importance that offers be low-cost and accessible. There should not too be many contract restrictions or signup requirements (e.g. bank references etc); as such, prepaid offers are so important.²⁹ For those who

²⁹ Roslyn Layton, Role of Prepaid in Africa, Chapter in The African Mobile Story, River Publishers, 2014.

have never tried the Internet, having an incentive such as a free trial, will support adoption.

More generally the mobile broadband penetration in the developing world is 39.1 persons for every 100. This exceeds the number of people who have computers and Internet at home, roughly one third of the population of the developing world.³⁰

	CY07	CY08	CY09	CY10	CY11	CY12	CY13	% Pop using Internet 2015 ³¹
Argentina	18.8%	24.9%	28.9%	31.4%	36.6%	40.8%	45.8%	64.70
Brazil	7.4%	9.2%	12.4%	15.7%	18.7%	22.5%	26.3%	57.60
Chile	N.A	N.A	N.A	N.A	N.A	N.A	N.A	72.35
Colombia	N.A	N.A	N.A	N.A	N.A	N.A	N.A	52.57
Mexico	13.3%	15.9%	20.3%	24.2%	29.7%	35.0%	39.0%	44.39
Peru	N.A	N.A	N.A	N.A	N.A	N.A	N.A	40.20
Algeria	N.A	N.A	N.A	N.A	N.A	N.A	N.A	18.09
Egypt	4.6%	6.6%	8.5%	9.8%	11.0%	12.5%	13.7%	31.70
Nigeria	3.5%	4.0%	5.0%	6.0%	7.4%	21.0%	22.7%	42.68
South Africa	9.9%	12.8%	15.6%	19.0%	22.0%	26.4%	30.2%	49

Table 5: Data % of service revenues

Another challenge in the provision of mobile services is that prices generally have no relation to fixed costs such as spectrum, and in some cases, operating costs such as traffic delivery. Mobile service markets are so competitive, that spectrum is generally a sunk cost. Another issue for mobile operators in developing countries is that user disproportionately request data from far away countries. This also adds to the challenge of pricing mobile broadband competitively and affordably.

Traffic analysis

An important issue that is overlooked in the discussion of zero rating is an economic analysis of the disproportionately high level of traffic generated by the top 10 mobile applications and the aggregation of traffic at exchanges and backbones. Net neutrality wants to ensure equal access to sites and services for end users, but such performance can only be achieved by keeping good provision, upgrade, and maintenance of the telecom network, which implies costs and relationships between the pricing of services and expenditure.

How traffic is aggregated and the impact the transport cost of data through backbone networks is transferred to users is not clearly understood, nor is such vital information

³⁰ "Core Household Indicators" (ITU World Telecommunication/ICT Indicators Database., 2015), <http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2015/CoreHouseholdIndicator.xls>.
³¹ Metadata for Percentage of Individuals Using the Internet," 2015, http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2015/Individuals_Internet_2000-2014.xls.

readily available. Not having the information or mischaracterizing the situation can lead to false conclusions. Some basic trends are known however and are helpful to review.³²

Video is a huge and growing portion of the traffic delivered to mobile devices, comprising more than two-thirds of all traffic in some countries. Significantly, just two entities, Google/YouTube and Netflix take an overwhelming share of this traffic.

Data centers are integral to the way the Internet works, not only because of the prevalence of virtualization and cloud services, but also because they provide the means to structure traffic worldwide. This puts considerable power in the hands of a few big players, including Google, Facebook, and Amazon. Akamai, Level 3, and other content delivery providers are important, as are the data centers of banks and telecom providers.

The structure of the traffic flows differ significantly from the archetypal model of the three layered internet (infrastructure, transport, service/data). Internet exchanges and private contracts for peering and transit re-draw routing worldwide. The structure today is more modular and “platformized.” The idea of content/application providers passively accessing transport networks has given way to the reality of proactive approaches in which content provider develop individualized solutions and relationships for advanced, dynamic delivery and competitive differentiation. Content providers avail themselves to non-neutral pricing as a matter of course. This means that Internet service providers (ISPs), including mobile operators, simply don’t have the market power that net neutrality advocates claim

Differential treatment of traffic is the norm, and this is what content providers want when they purchase traffic delivery solutions from a range of intermediary providers.

Decisions about transit and data centers by content/applications providers have material impacts to end users. For example, people in Latin America use global (American) platforms such as Google, Facebook and Twitter to talk with people around the corner. How those platforms are provisioned locally and regionally has technical, regulatory, and geopolitical implications. For example Google built a CDN in Chile, allowing traffic to be redistributed from the Miami internet exchange. This improves the experience for its end users in Chile.

In Europe, the practical evidence shows that Europeans largely use American platforms to communicate with other Europeans. Unfortunately the Amsterdam Internet Exchange (AMIX) has not been forthcoming to allow academics to measure or test these traffic trends.³³

³² Weller, Dennis, and Bill Woodcock. “Internet Traffic Exchange: Market Developments and Policy Challenges.” OECD Digital Economy Papers, No. 207, OECD Publishing., 2012. <http://www.internetsociety.org/doc/weller-d-and-b-woodcock-2012-internet-traffic-exchange-market-developments-and-policy-challenges>.

Liebenau, Jonathan, S. Elaluf-Calderwood, and P. Karrberg. “European Internet Traffic: Problems and Prospects of Growth and Competition - White Paper.” London: London School of Economics and Political Science, 2013.

Liebenau, Jonathan, S. Elaluf-Calderwood, and P. Karrberg. “Strategic Challenges for the European Telecom Sector: The Consequences of Imbalances in Internet Traffic.” *Journal of Information Policy* 2 (2012): 248–72.

³³ Silvius, Stephanie. “Internet Exchange Points: A Closer Look at the Differences between Continental Europe and the Rest of the World.” Amsterdam: EURO-IX, 2011.

Case studies of zero rating in Chile, Netherlands, and Slovenia

Given that the country level financial information offers limited opportunity to address the five assertions, case studies are offered to give further insight and context. Chile, Netherlands, and Slovenia are three countries with hard net neutrality laws and bans on forms of zero rating. This section explores a number of factors and dynamics related to the banning of zero rating. It generally starts with a belief amongst net neutrality advocates that regulators are not doing enough to enforce net neutrality rules. While advocates recognize that blocking and throttling either don't happen or are rare occurrences, it is seen as urgent to address what they consider a growing problem, the presence of price differentiated offers in the marketplace. The net neutrality organizations make formal complaints to regulators and competition authorities with a similar argumentation: The country has a net neutrality law requiring all data to be treated equally. Ergo zero rating is a violation.

In each of the three countries, the first response of telecom regulator was that zero rating is not a violation. There seems to be a reluctance of the regulator to rule that zero rating is discriminatory, whether for a recognition of its benefits, a waste of political capital on an insignificant issue in light of more pressing priorities; or even misgiving about net neutrality itself.

Undeterred, net neutrality advocates step up the campaign against zero rating by writing blogs and enjoining sympathetic journalists to take up the story. In each of the three countries, advocates have succeeded with bans. However, the rulings decisions are flawed, according to net neutrality advocates. Bans are not uniform across all offers and providers. Many stakeholders complain that efforts made to provide more clarity end up creating more confusion. Moreover regulators find themselves in embarrassing situations in which they have to backtrack on judgements, correct earlier statements, and mediate moral decisions about why zero rating is ok for Wikipedia but not for WhatsApp.

We find as well that net neutrality advocates and organizations are closely tied to the regulatory authority and government. In one case, a net neutrality advocate rises to a position of regulatory power to implement the zero rating ban himself. Victory is declared by net neutrality advocates when operators raise or remove data caps.

Chile

In 2010 Chile was the first country in the world to make a net neutrality law.³⁴ The effort was an outcome of many years of lawsuits between operators and attempted telecom regulation that was ultimately found unlawful. To make rules, the country's communications laws needed to be updated to vest the proper authority within the telecom regulator, a situation currently in play in the US, as the FCC faces lawsuits for its attempt to make net neutrality rules. The situation is indicative of outdated communications laws that Congress needs to modernize. But just because net neutrality rules are in place does not necessarily mean the issue has more clarity. The Chilean case illustrates that rules can create more disputes.

Virgin Mobile is an MVNO running on Movistar network's in Chile in April 2012. Because virtual operators resell network access, they cannot differentiate on speeds or quality, so they must differentiate on marketing, customer service, and other non-network parameters. As such zero rating is an important tool for MNVOs.

Virgin Mobile Chile used a common marketing strategy employed by MNVOs: paint the established operators as dinosaurs and celebrate customers as "rock stars". "Chileans

³⁴ *Consagra el Principio de Neutralidad en la Red Para Los Consumidores y Usuarios de Internet*, General de Telecomunicaciones Ley 18.168 (August 26, 2010), <http://www.leychile.cl/Navegar?idNorma=1016570&buscar=NEUTRALIDAD+DE+RED>

can now get fair flat rate calling and great Data bundles and "Anti-Plans"³⁵ with everything they need. And Virgin Mobile Chile throws in extra goodies like Unlimited Whatsapp when you buy data. The Rock Star customer support team has brought a new level of care to the Chile market, and customers are the most satisfied in the market," notes the operator's Chilean website.³⁶

A year after launch, the company had 200,000 customers which the CEO owes to "a simple offer, without asterisks, flat rate data, convenient bags of minutes, and a call center."³⁷ Over three years, the company earned 1% of the Chilean market and is on track to have 400,000 customers by the end of 2015, half of which are post-paid.³⁸ Other explanations for its success include laws in 2012 that allow number portability and unlocking of phones.³⁹ Virgin Mobile has extended its concept to Mexico and Colombia and has a goal of winning 5% of the Chilean market.⁴⁰

To be sure, with 70 percent of customers are aged 15-35, of which 70% have data plans and 85% have smartphones, WhatsApp would be one of the popular apps to include in an offer. In response to Subtel's decision to ban zero rating, the CEO explained,

Well, certainly it had an impact because we had to revise our offer. We have not eliminated the promotion, but we had to change it. Back when you bought a package of data, we gave free Whatsapp for the 30 day duration of the package, and if a customer left without any balance, the customer could continue using WhatsApp to the end of the period. Now we continue offering this service for free, that is, that the use of data Whatsapp not count toward the package, but the moment in which the client runs out of contract data, he cannot continue using WhatsApp. That is, customers have Whatsapp free while having data package.⁴¹

However the CEO asserts that zero rating has less importance in light of other activities, which include its distribution strategy through the large retail chains Ripley and Falabella and wholesaling which resells the packages to small shops. Virgin Mobile has some of its own kiosks in subway stations, its website, and number portability. The country also adopted a framework to support MVNOs.⁴² The success of Virgin Mobile cannot be attributed directly to its zero rated offer.

It would be expected that net neutrality advocates would appreciate such service-based competition in the market, but no. Neutralidad Sí! in concert with CivicoONG complained to the regulator that Virgin Mobile's offer of free WhatsApp was an attack on the law of net neutrality. They asserted that Virgin Mobile is creating a disincentive to use competing messaging services such as Line and Telegram. Correspondence between Neutralidad Sí and the regulator was reviewed. The original complaint, No. 324923 posted on January 29, 2013, has been removed,⁴³ but the rest of the exchange remains.

In the correspondence, the regulator reiterated that the Chilean rules state that operators cannot arbitrarily block, interfere, discriminate, hinder or restrict the right of any Internet user to use, send, receive or offer any content, application, or legal service. Offers cannot arbitrarily distinguish content, applications, or service based on source or

³⁵ Anti-plan was the idea of an offer that is not constrained to the traditional telecom contract, e.g. long contract life, termination fees, extra charges etc

³⁶ "Virgin Mobile Chile," *Virgin.com*, accessed August 5, 2015, <http://www.virgin.com/company/virgin-mobile-chile>.

³⁷ "Virgin Mobile Cuenta En Chile Con Más de 200.000 Clientes," *CIOAL The Standard IT*, April 17, 2013, <http://www.cioal.com/2013/04/17/virgin-mobile-cuenta-en-su-primer-ano-en-chile-con-mas-de-200-000-clientes/>.

³⁸ Markus Zallman, "Virgin Mobile Chile Targets 400,000 Mobile Subs by End- 2015," *MVNO Dynamics*, April 22, 2015, <http://www.mvnodynamics.com/2015/04/22/virgin-mobile-chile-targets-400000-mobile-subs-end-2015/>.

³⁹ "Virgin Mobile Chile's MVNO Signs up 36,000 Subscribers," *MVNO Dynamics*, July 24, 2012, <http://www.mvnodynamics.com/2012/07/24/virgin-mobile-chiles-mvno-signs-up-36000-subscribers/>.

⁴⁰ Leticia Pautasio, "Queremos Alcanzar 300.000 Clientes Al Cierre de 2014," *Telesemana*, April 13, 2014, <http://www.telesemana.com/blog/2014/08/13/queremos-alcanzar-300-000-clientes-al-cierre-de-2014/>.

⁴¹ Ibid

⁴² Ibid

⁴³ Civico ONG, "Denuncia Por 'Whatsapp Gratis' En SUBTEL," *Storify*, accessed August 5, 2015, <http://storify.com/ongCivico/denuncia-por-whatsapp-gratis-en-subtel>.

owner. The legislation still allows operators to manage traffic within a set of constraints, provided that the actions do not impact competition. The purpose of the law is to ensure that services, applications, and content are offered without discrimination to the time the user access is allowed without arbitrary restrictions and that access be provided in a competitive way.

The offer by Virgin Mobile and WhatsApp did not prevent access to other applications, according to the regulator. It only releases metering for the one application for the period of the offer, and therefore does not constitute a breach of net neutrality. The user can also access the application even when he has no balance.

Neutralidad Sí! responds the same day. They extrapolate that it will lead to situations in which users are coerced with rebates and discounts to use "search engine X" or "video provider Y". Secondly they object to the idea that "traffic management and network management" do not harm competition. They note that if access to WhatsApp is free then it effectively harms other competitors because to access to them must be paid.

The regulator replies that it has revisited the net neutrality law and reiterates the points. As for the threat described, that an operator is favoring one application over another, this is not case because the offer is not restricting the right of users to access the Internet, which is the point of the law.

Neutralidad Sí! responds with a reference to Article 19 of the Civil Code: "When the meaning of the law is clear, its wording be disregarded under the pretext of consulting its spirit." They reiterate the words "discriminate" and "offer" that exist in the net neutrality law and the Royal Academy of the Spanish language definition of discrimination being "select excluding". They suggest that if other services receive the same treatment as WhatsApp, the arbitrary nature of the discrimination will be eliminated.

The complaint was brought to the Secretariat of the Regulator and then closed with the explanation that the regulator had provided an adequate explanation. The Neutralidad Sí! blog says that the regulator's response was "awkward" and did not rule on the merits.

It appears that the issue gets no further attention until a new chair comes to the telecom regulator. Pedro Huichalaf, former head of related net neutrality advocacy organization ONGMeta, took office in March 2014.⁴⁴ The ban on zero rating of selected social media sites is pronounced illegal the following month.⁴⁵

The official decision notes that companies are not punished for offering zero rating, but are invited to end the practice, or to provide the benefits to all traffic of the same class. Some confusion emerged once the decision was released as to nature of the word "arbitrary", whether traffic is treated in an "arbitrary" or deliberate way. At the time of the ruling, Wikipedia Zero was not yet available, but the rule ostensibly outlawed it. Wikipedia noted the Chilean decision is "example of when net neutrality — which is an important principle for the free and open internet — is poorly implemented to prevent free dissemination of knowledge."⁴⁶ The regulator then needed to relent and allow Wikipedia to be an exclusive zero rated service, noting that there is a clear difference between Wikipedia Zero and unlimited social messaging.⁴⁷ Neutralidad Sí called the exception for Wikipedia, the "last unicorn of the 'good Internet'", a double standard.

Neutralidad Sí appears to be dissatisfied because the regulator while pronouncing the practice illegal, does not do enough to prosecute or punish telecom providers for the

⁴⁴ "Renuncia de Pedro Huichalaf Por Nominación Como Subsecretario de Telecomunicaciones," *ONG META*, accessed August 5, 2015, <http://ongmeta.cl/renuncia-de-pedro-huichalaf-por-nominacion-como-subsecretario/>.

⁴⁵ *Zero Rating of Such Social Media as Pronounced Illegal*, 2014, http://www.subtel.gob.cl/transparencia/Perfiles/Transparencia20285/Normativas/Oficios/14oc_0040.pdf.

⁴⁶ Yana Welinder, "[Wikimedia Announcements] [PRESS RELEASE] Airtel Offers Nigerians Free Access to Wikipedia," June 1, 2014, <https://lists.wikimedia.org/pipermail/wikimedia-l/2014-June/072336.html>.

⁴⁷ <http://www.vpschile.cl/servidor-virtual/3821/1/internet/wikipedia-zero-avanza-en-chile.html>

practice. The organization says that the situation is contradictory and calls on the regulator to clarify. The comments under the blog blame Neutralidad Sí for making the zero rating complaint in the first place. The commenter notes that the ban hurts poor people who can't communicate with their family through WhatsApp. Another comment refers to the slippery slope of ill-defined rules such as the ban on zero rating, what may be legal today will not be tomorrow and vice versa. Additionally he faults the organization for not recognizing how internet companies (Facebook) take advantage of users' information with free services. Another commenter criticizes the net neutrality rhetoric of "free Internet" because technically a zero rated offer is free access.

Earlier heads of the Chilean regulator criticized the ruling. On Twitter, one called it "populist idiocy from a small group of activists. A new form of regulatory capture."⁴⁸ Another penned an opinion piece in the leading newspaper titled "positively discriminatory, but not arbitrary, in favor of the poor."⁴⁹

To put the issue into perspective, we reviewed official materials of the Chilean telecom regulator. Along with the consumer authority, it publishes an annual report of complaints related to telecommunications. The report⁵⁰ for 2012-2013 is telling in what consumers complain about; which companies; and how complaints are resolved. Specifically we were interested to see whether consumers complained to the regulator that zero rating is harmful.

Complaints about mobile communications make up about half of all the complaints in the country for the period. About 2 of every 200 mobile subscribers complain. For mobile communications, the single largest set of complaints is about phones (13%) and problems with phones connecting with networks leading to slow speeds (11%). Thereafter the bulk of complaints (56%) have to do with the contracts themselves, issues of customer care information is faulty, wrong or inadequate; disputes on charges for additional services; charges made for services not used; contract termination; term of warranty for phone; lack of accurate and timely information; and billing cycle change. In fact the largest single complaint across all telecommunications networks is incorrect charges, 27%. The report notes that complaints were resolved at least two-thirds of the time for all but one mobile operator. The report notes that total complaints declined 3.6% from 2012 to 2013.

Importantly the report does not list specific net neutrality or zero rating complaints, and if they exist, they do not amount any more than 1.8% of complaints, the smallest category of any collected complaint. It would be expected that if zero rating was so destructive to consumer welfare and competition that it would garner at least 1.8% of complaints to the regulator. Moreover, if the zero rated version of WhatsApp was hurting competition, it would be expected that Facebook Messenger, Line, Telegraph, and other services would have complained. No evidence of this can be found on the regulator's website. The only complaint we could find was that of Neutralidad Sí!

Chilean consumers increasingly demand content that is not Chilean. It is housed in far locations and takes time to reach Chile. This can also be observed that when one is in Europe accessing a Chilean website, one may experience latency. Sandvine notes,

In Latin American mobile networks, two companies, Facebook and Google, now control over 60% of total traffic in the region. This dominance is driven by the popularity of low cost Android smartphones in the region as well as Facebook's

⁴⁸ "Sobre Redes Sociales Gratis (with Image, Tweets) · ongCívico," *Storify*, accessed August 5, 2015, <http://storify.com/ongCivico/sobre-redes-sociales-gratis>.

⁴⁹ Pepe Huerta, "Redes Sociales Gratis Y La Circular de SUBTEL. ¿Donde Surgió El Problema?," *Neutralidad Si*, June 2, 2014, <http://www.neutralidadsi.org/2014/06/02/redes-sociales-gratis-y-la-circular-de-subtel-donde-surgio-el-problema/>.

⁵⁰ "Servicio Nacional Del Consumidor | SERNAC Y SUBTEL Dan a Conocer Ranking de Reclamos En El Mercado de Telecomunicaciones," Sernac, (January 24, 2014), <http://www.sernac.cl/sernac-y-subtel-dan-a-conocer-ranking-de-reclamos-en-el-mercado-de-las-telecomunicaciones/>.

decision to embrace social networking and messaging through their acquisitions of Instagram and WhatsApp. With such concentration, corporate decisions by these major players, like Facebook's decision to auto-play videos uploaded to its site, can instantly and dramatically impact subscribers and network operators.⁵¹

The issue can be resolved with intermediaries such as content delivery services, video encoding, and content formatting. Generally content owners purchase these services to ensure the fidelity of their content, as well as to lower their operating costs (better formatting reduces storage cost and energy consumption). However it is not necessarily clear that all content owners will have a strategy for Chile, especially if they don't license their content for the country.

Given that contract complaints are a leading issue, it begs the question why the regulator does not focus more on transparency requirements. Such an approach was taken by the Swedish regulator (PTS) in 2009, establishing guidelines in 2009⁵² in lieu of making a law. In the Swedish perspective, net neutrality is about ensuring transparency in pricing, service offerings, network quality, as well as upstream and downstream capacity so that consumers are clear in what they purchase and can easily switch providers. PTS claims its consumer-centric, light-touch approach is successful and has improved operating norms so much that adopting to the EU's new solution is a step backward.⁵³

In a recent presentation⁵⁴ to the Body of European Regulators for Electronic Communications (BEREC), Subtel chair Huichalaf declared that zero rating is attractive from the point of view of users. However he believes that the regulator still has a role to decide whether such offers should be allowed.

Netherlands

The Netherlands is recognized by the OECD as the world's most competitive broadband market for the number of multiple broadband facilities available.⁵⁵ On account being the world's flattest and most densely populated country, there are nearly two wired infrastructures (copper and cable) to every residence, three mobile networks (and a fourth under construction), resellers on top of the copper infrastructure; and dozens of virtual mobile providers. Fiber is available in some cities as well. It is counterintuitive that net neutrality laws should be so strict, for if ever a market existed where consumers could switch if they didn't like their provider, it is the Netherlands.

Since adopting the net neutrality law, a number of financial indicators reveal a worsening situation for Dutch telecoms. Though a number of trends were already in play well before the law, including declining voice revenue and service revenue growth. The Netherlands is a saturated market in both fixed and mobile. Growth of subscribers is flat in fixed. In mobile, it has been declining since 2011 when it had a high of 105% and has fallen below 100%. There are no new customers for operators; the only possibility is to poach each other's customers. Frequently this can mean a race to the bottom. The monthly churn rate for the industry is 2.5%, relatively high for a postpaid market. This indicates that customers can and do change providers.

⁵¹ "Sandvine - Global Internet Phenomena - Latin American Report May 2015," Sandvine, (May 2015), <https://www.sandvine.com/trends/global-internet-phenomena/>.

⁵² Post-och Telestyrelsen (PTS), "Nätneutralitet", <http://www.pts.se/sv/Bransch/Internet/Oppenhet-till-internet/>

⁵³ ETNO, "Ola Bergström, Director at Swedish Post and Telecom Authority - PTS, Gives an Interview at ETNO-MLex Summit 2014," viEUws, July 7, 2014, www.vieuws.eu/etno/etno-etno-mlex-summit-2014-interview-with-ola-bergstrom-director-for-international-affairs-swedish-post-and-telecom-authority-pts/

⁵⁴ Pedro Huichalaf, "Neutralidad de La Red: Explorando El Impacto En REGULATEL," *Gobierno de Chile*, July 2015, <http://berec.europa.eu/files/doc/4.%20PPT-%20CHILE%20-%20REGULATEL%20-%20BCN.pdf>

⁵⁵ See section 3 on Coverage and Geography. "OECD Broadband Portal," July 23, 2015, <http://www.oecd.org/sti/broadband/oecdbroadbandportal.htm>.

Nevertheless financial results reveal that costs are managed prudently. To maintain profitability in a strict regulatory environment where new business models are not allowed, the only recourse is to lay off workers. In 2014, KPN laid off 2000 in the consumer branch and another 500 in the corporate.⁵⁶ This follows other cuts in recent years across the industry.

Net neutrality advocacy organization Bits of Freedom has been instrumental to bring attention to net neutrality.⁵⁷ Though they had conducted campaigns for a number of years on the topic, they found little interest with the general public. However a statement from a KPN executive, suggesting that the company would charge users to access WhatsApp, catapulted Bits of Freedom (BoF)'s efforts to center stage. In addition to viral take-up of the issue in the media, the stakeholders BoF had cultivated, including key parliamentary sponsors, allowed the organization, in just two months, to push through the legislation it had created. There was no hearing of mobile operators or investigation of traffic management. The Law was promulgated in 2012 and came into force the following year.

The Dutch Parliament had been revising its Telecommunication Act during this period, and BoF found support among a number of Parliamentarians. It also provided the lawmakers with a proposed text for the law⁵⁸ as well as position papers developed under the support of the Council of Europe (an agency empowered to protect human rights) to support the legislation.⁵⁹ Encouraging Dutch innovation in internet services and applications was a reason given to support net neutrality.

From the operators' side, the uptake of the free SMS applications in lieu of proprietary services materially affected revenue. KPN, for one, was not prepared for the shift. For the first time in many quarters, the company issued a profit warning.

In its quarterly announcement, it noted a large drop in SMS revenue in Q1 of 2011 and lowered EBITA projections by €200 million euros from the prior year. KPN also noted that to lower costs, it would lay off 25% of its Dutch workforce, about 4000-5000 employees.⁶⁰ Before making the suggestion of charging for WhatsApp, KPN obtained permission from the Dutch telecom regulator OPTA.⁶¹ The regulator approved the offer and noted, "This means more choice for consumers, which allows subscriptions can take better suited to use. We therefore welcome such a development, on condition that the provider is transparent about the cost."⁶²

What is frequently described as a predatory situation between operators and third party applications, might also be viewed as operators having the wrong business model in a time of change. Until 2010, data consumption on mobile devices was limited in the Netherlands, and the price reflected that users did not demand it very much. But with smartphones and emerging online services, consumers started to shift their consumption. This came at a time where the prevailing terminating regime in the caller

⁵⁶ Janene Van Jaarsveldt, "KPN to Cut 580 Jobs," *NL Times*, December 10, 2014, <http://www.nltimes.nl/2014/12/10/kpn-cut-580-jobs/>.

⁵⁷ Roslyn Layton, "Net Neutrality in the Netherlands: Dutch Solution or Dutch Disease?," 24th European Regional ITS Conference, Florence 2013 (International Telecommunications Society (ITS), 2013), <http://econpapers.repec.org/paper/zbwitse13/88488.htm>.

⁵⁸ Matthijs van Bergen, intern at Bits of Freedom "played a consulting role in the establishment of net neutrality legislation in the Netherlands." <https://www.linkedin.com/in/matthijsvanbergen>

⁵⁹ "Protecting Human Rights through Network Neutrality: Furthering Internet Users' Interest, Modernising Human Rights and Safeguarding the Open Internet" (Steering Committee on Media and Information Society (CDMSI), December 3, 2013), [http://www.coe.int/t/dghl/standardsetting/media/CDMSI/CDMSI\(2013\)Misc19_en.pdf](http://www.coe.int/t/dghl/standardsetting/media/CDMSI/CDMSI(2013)Misc19_en.pdf).

⁶⁰ "2011 EBITDA Outlook Adjusted Downwards, Free Cash Flow Confirmed," KPN, (April 21, 2011), <http://corporate.kpn.com/press/2011-ebitda-outlook-adjusted-downwards-free-cash-flow-confirmed.htm>. Hear KPN CEO Elco Blok <http://nos.nl/audio/234661-ontwikkelingen-hebben-negatieve-invloed-op-omzet.html>

⁶¹ OPTA is the Dutch Post and Telecommunications Authority, the now closed Dutch telecom regulator. It was subsumed into ACM (Consumer and Market Authority) in early 2013

⁶² Arnoud Wokke, "KPN: 'Chatheffing' Voor Mobiel Internet Komt Deze Zomer," *Tweakers*, (April 21, 2011), <http://tweakers.net/nieuws/74017/kpn-chatheffing-voor-mobiel-internet-komt-deze-zomer.html>.

pays, both increased the price of voice and SMS, but also created an incentive for off-net termination.⁶³

It is important to note that WhatsApp has remained in the top position as the most popular messaging app in the Netherlands for years. No operator or competitor has succeeded to impact its position.

Once the law came into effect, there were no reports of net neutrality violations for some time.⁶⁴ One view is that the law was working to deter violations. On the other hand, it be embarrassing politically if no violations occur, for it may appear that the law was made too hastily. As such, there could be political pressure to find a problem to justify the law *ex post*.

In January 2013 the new telecom regulator, now rationalized in the Dutch Consumer and Market Authority (ACM) commissioned a study⁶⁵ of over-the-top (OTT) services. Rather than prohibiting the development of third party applications and services, operators facilitate OTT services through their provision of mobile broadband. Increasingly consumers use these services. It also noted the declining power of mobile operators, specifically, "On sales level we see a shift from KPN to cable and a parallel of shifting market shares. Mobile data market is the engine of growth, with WiFi as a substitute for mobile or mobile data. The mobile service revenue and ARPU show a slight downward trend."⁶⁶

Meanwhile in Brussels, the European Parliament passed a net neutrality resolution on April 3, 2014. The Alliance for Liberal Democrats for Europe (ALDE) drove its passage with Dutch Member of Parliament Marietje Schaake.⁶⁷ She celebrated the passage on the website of D66, the Dutch Democratic Party, noting "Conversely, Europe must also ensure that Internet and communication technologies are regulated too. More and more countries and the UN are working on laws and regulations to enhance the control of governments."⁶⁸ Though the Parliament's resolution requires the agreement of the European Commission and the Council of Ministers (head of state of the EU member nations) to become law,⁶⁹ the resolution triggered the Dutch to strengthen the interpretation of their net neutrality law, specifically to eliminate exceptions for zero rating.

The Dutch Ministry of Economic Affairs started a process to discuss how the net neutrality law should be interpreted, how strict it should be, and what to do about the practice zero rating, called "loose" or stand-alone services. A consultation was held in May 2014.⁷⁰ Among the 30 respondents was Netflix,⁷¹ which just a few months before, signed on as

⁶³ An important point to underscore for the US is that having a termination in which both sides paid reduced any incentive to block VOIP and SMS applications on smartphones.

⁶⁴ There was on complaint about T-Mobile throttling wifi on trains. ACM ruled that it is acceptable for T-Mobile to manage its networks for congestion. Peer to peer and file sharing applications create a lot of traffic and this harms other applications, especially on a train where 2G/3G service is offered. The moving trains also makes the connection difficult. Managing the traffic is acceptable in this circumstance. "Correspondentie Afsluiten onderzoek 'T-Mobile HotSpot in de trein' | ACM.nl," Correspondentie, (December 30, 2013), <https://www.acm.nl/nl/publicaties/publicatie/12508/Afsluiten-onderzoek-T-Mobile-HotSpot-in-de-trein/>.

"Nieuwsbericht T-Mobile mag gratis internet in NS-treinen beperken," Nieuwsbericht, (December 30, 2013), <https://www.acm.nl/nl/publicaties/publicatie/12507/T-Mobile-mag-gratis-internet-in-NS-treinen-beperken/>.

⁶⁵ "Onderzoek Overzicht markt voor over-the-top diensten Nederland - januari 2013 (Telecompaper) | ACM.nl," Onderzoek, (July 23, 2013), <https://www.acm.nl/nl/publicaties/publicatie/11717/Overzicht-markt-voor-over-the-top-diensten---Nederland---januari-2013-Telecompaper/>.

⁶⁶ Ibid

⁶⁷ Marietje Schaake, "Europees Parlement Steunt Voorstel Schaake Voor Netneutraliteit in Europese Wet," D66, April 3, 2014, <https://d66.nl/europees-parlement-steunt-voorstel-schaake-voor-netneutraliteit-europese-wet/>.

⁶⁸ "Digitale Vrijheid Prioriteit in EU-Buitenlandbeleid - Doe Mee, Word Lid!," D66, November 7, 2014, <https://d66.nl/ep-commissie-steunt-d66-digitale-vrijheid-prioriteit-in-eu-buitenlandbeleid/>.

⁶⁹ This was ultimately resolved on June 30, 2015 with rules coming into force on April 30, 2016. "Commission Welcomes Agreement to End Roaming Charges and to Guarantee an Open Internet," *European Commission*, June 30, 2015, http://europa.eu/rapid/press-release_IP-15-5265_en.htm.

⁷⁰ "Consultatie Beleidsregel netneutraliteit," consultatie, (May 2, 2014), <http://www.internetconsultatie.nl/netneutraliteit>.

⁷¹ "Consultatie Beleidsregel netneutraliteit, reactie," webpagina, (May 28, 2014), <http://www.internetconsultatie.nl/netneutraliteit/reactie/71331718-03d9-43be-9d87-43d2cdf1355>.

the first customer in the New York office of the Amsterdam Internet Exchange⁷² (The company has since moved its European headquarters to Amsterdam and plans to use the location to help grow its business in the Middle East and Africa.⁷³) Netflix commended the Ministry's efforts, supported a strict policy against zero rating, noted that net neutrality stimulates innovation, and suggested a broad interpretation of net neutrality, effectively ensuring that consumers increasingly choose flat rate packages. The outcome of the consultation is strict version of net neutrality with a strict interpretation which the regulator must enforce.⁷⁴ Interestingly Netflix is zero rated in Australia as part of its partnership with fixed lined operator iiNet.⁷⁵ The company calls the introduction of Netflix to the Australian market a game changer.⁷⁶

On June 5, 2014 in "Net neutrality the work in progress"⁷⁷ Bits of Freedom described the process conducted by the Ministry of Economic Affairs to clarify ambiguities in the Dutch net neutrality law. It criticized Facebook, Vodafone, RTL, and Endless Spotify⁷⁸, a zero rated program offered by Hi, a virtual mobile provider (owned by KPN) offering discount services focused on the youth market. The blog refers to an article⁷⁹ mentioning the Vodafone's Sizz⁸⁰ and T-Mobile's Deezer. The article includes a quotation from the Dutch regulator, calling Endless Spotify a "stand alone service", meaning that purchase of the subscription is not tied to the purchase of a data package, therefore it does not violate net neutrality.⁸¹

It notes that such stand-alone services are by "allowed by the letter of the law, but runs counter to the intent of the law. Positive discrimination is discrimination. The ACM sees no problem." BoF continues, "We thought about whether other Internet areas must meet the same kind of neutrality values. Some claim that 'soft neutrality' is not enough and that efforts should be made for 'hard neutrality', including peering and transit. And what about search? Or application stores? Another response to the consultation argued that the rules should also apply to the provision of IPv4 and IPv6."

For the week of September 20, 2014 BoF notes on its blog,⁸² "We were visiting the ACM to discuss net neutrality and its enforcement. We began our analysis of the law in the Netherlands; very interesting in light of the upcoming European law⁸³ and the current debate in the US."⁸⁴

Some two years after the Dutch net neutrality law took effect, ACM fined two operators for violations. Vodafone had only 3200 customers on its HBO Go app, was fined €200,000, and was ordered to end the offer. It is likely that the fine is more than the company earned on the service.

⁷² "Netflix Signs On To New York Open Internet Exchange," *Amsterdam Internet Exchange*, December 2, 2013, <https://ams-ix.net/newsitems/124>.

⁷³ <http://www.iamsterdam.com/en/business/invest/business-news/netflix-officially-opens-european-headquarters-in-amsterdam>

⁷⁴ "Besluit van de Minister van Economische Zaken van 11 mei 2015, nr. WJZ/15062267, houdende beleidsregel inzake de toepassing door de Autoriteit Consument en Markt van artikel 7.4a van de Telecommunicatiewet (Beleidsregel netneutraliteit)," officiële publicatie, *officielebekendmakingen*, (May 15, 2015), <https://zoek.officielebekendmakingen.nl/stcrt-2015-13478.html>.

⁷⁵ <https://gigaom.com/2015/03/02/netflix-wont-count-against-iinet-broadband-caps-in-australia/>

⁷⁶ <http://www.iinet.net.au/about/mediacentre/releases/2015-03-03-quota-free-netflix.html>

⁷⁷ Floris Kreiken, "Netneutraliteit Blijft Work-in-Progress," *Bits Of Freedom*, June 5, 2014, <https://www.bof.nl/2014/06/05/netneutraliteit-blijft-work-in-progress/>.

⁷⁸ "Hi Introduceert Eindeloos Spotify: Onbeperkt Muziek Streamen Op Je Mobiel Zonder Dat Dit MB's Kost," KPN, (January 6, 2014), <http://corporate.kpn.com/pers/persberichten/hi-introduceert-eindeloos-spotify-onbeperkt-muziek-streamen-op-je-mobiel-zonder-dat-dit-mbs-kost.htm>.

⁷⁹ Arnoud Wokke, "Hi Haalt Verbruik Spotify-App Niet Meer van Databundel Af," *Tweakers*, January 6, 2014, <http://tweakers.net/nieuws/93502/hi-haalt-verbruik-spotify-app-niet-meer-van-databundel-af.html>.

⁸⁰ Andreas Udo de Haes, "Vodafone En T-Mobile Schenden Netneutraliteit," *Webwereld*, June 17, 2013, <http://webwereld.nl/netwerken/78147-vodafone-en-t-mobile-schenden-netneutraliteit>.

⁸¹ The price to the user is the same whether he buys the subscription from Spotify or Hi, but in the latter, the data use is not charged to the subscription.

⁸² Door Tim Toornvliet, "De Week in 417 Woorden," *Bits of Freedom*, September 20, 2014, <https://www.bof.nl/2014/09/20/de-week-in-417-woorden/>.

⁸³ Link in article points to <https://www.bof.nl/2014/04/03/persbericht-netneutraliteit/>

⁸⁴ Link in article points to "ISPs Mislead Public, FCC About Protecting the Open Internet," *Electronic Frontier Foundation*, September 15, 2014, <https://www.eff.org/press/releases/isps-mislead-public-fcc-about-protecting-open-internet>.

KPN was fined €250,000 for what amounted to blocking on a free wifi network. The company admitted its mistake, a setting that had been on place its wifi networks, which it forgot to update once the net neutrality rules came into effect. About one third of the wifi traffic was at Schiphol Airport and the free service was designed as a convenience for travelers for a short and quick internet connection upon landing, for example to check messages and email. Bittorrent, FTP, SSHA, Telnet and VoIP were blocked to ensure the smooth functioning of the free service. The blocks are now removed but presumably the free basic internet service doesn't run as well. Interestingly a number of comments under the BoF blog mention that they have 4G services so wifi not important to them anyway.

In May 2015 KPN was ordered to end zero rated Spotify contracts, though the traffic generated by Spotify traffic is negligible on KPN networks. It is interesting to note that while zero rated offers of Spotify may be maligned by net neutrality advocates, for Spotify, one of only a handful of successful European startups, the partnership with telecom operators has proven important for its growth.⁸⁵ Not only can Spotify leverage an operator's billing system (avoid the cost of using its own system and give customers the benefit of not having to enter payment credentials into a new system), Spotify earns valuable paying customer. Most free users of Spotify never upgrade to the premium version, but in a telco partnership, subscribers who are already paying for a mobile subscription are more willing to take on an additional paid service because of the convenience of the bundle.

Not only is the sale of premium subscriptions essential for Spotify's survival, the revenue earned plays an important role to lessen music piracy and to help bring revenue to the music industry. Sweden's music industry was decimated by the rise of digital music on the Internet; revenues declined steadily from 2002 to the 2009. With the introduction of Spotify, however, the industry has managed a 20% gain in the last three years.⁸⁶

The Netherlands fared even worse with its traditional music industry than Sweden, but Spotify helped to reduce piracy in the country, with 29% of the 1.8 million Dutch BitTorrent pirates taking just 1 music file in 2012. The top 10% of the pirates account for half of the content obtained illegally, some 16 files each or more.⁸⁷ Passive pirates don't bother to pirate material when they can get a reliable, quality music experience for a good price.

In Sweden, digital music revenues account for almost 60% of all music industry revenue. In Netherlands the amount is just 27%, but if it could increase to the level of Sweden, ideally with the more uptake of services such as Spotify, there would be an additional \$124 million for the music industry and musicians. In any case, digital music sales grew by increased by 66% in the country in 2012, the highest of any country in Western Europe.⁸⁸

While music piracy may be on the wane as a number of viable music streaming alternatives have emerged, piracy of film is going strong. Having more Spotify-like solutions for film is preferable to criminalizing pirates. And yet HBO Go, one such solution, is maligned by net neutrality advocates.

In a statement on June 1, 2015, the ACM praised the state of Dutch 4G networks and increased mobile data consumption. They note,⁸⁹

⁸⁵ "Adventures in the Netherlands:" (Spotify, July 17, 2013), <https://press.spotify.com/dk/2013/07/17/adventures-in-netherlands/>.

⁸⁶ Ibid p. 9

⁸⁷ Ibid p. 1

⁸⁸ Ibid p. 24

⁸⁹ "Investeringsen uitrol 4G bijna voltooid, apps besparen op dataverbruik," Nieuwsbericht, ACM, (June 1, 2015), <https://www.acm.nl/nl/publicaties/publicatie/14305/Investeringsen-uitrol-4G-bijna-voltooid-apps-besparen-op-dataverbruik/>.

After Mobile operators' investment to roll out 4G is almost complete. After a peak of investment in 2013 of €2 billion, the investment in 2014 fell back to more than € 800 million. Henk Don, board ACM: "With the introduction of 4G has paved the way for fast internet on your smartphone. And there are many uses. The consumption of mobile data is doubled. "This is attributable to approximately 4 million consumers who are relatively common and many Internet via their phone. For example, to stream movies or music. The number of customers using 4G also doubled in a year to about 40 percent. What is evident from the Telecom Monitor is that the rapid growth of data consumption is leveling off.

The net neutrality law that was supposed to be a "silver bullet" has created new problems.⁹⁰ Instead of a flowering of local content and services, the Netherlands experiences the "Netflix effect"⁹¹ in which a single American company consumes twenty percent of the country's bandwidth with a small subset of users. Netflix is one of the most downloaded apps in the Dutch Google Play store. Its competitor HBO Go which was ultimately impacted in the net neutrality debate is far from a threat, sitting in the long tail distribution.

As for innovation in Dutch mobile services and applications in August 2015, only two Dutch apps feature in the top 25; Marktplaats, the second hand marketplace and Buienradar for the weather. In the Google Play Store they are #12 and #13 respectively and in the Apple App Store, #18 and #19.

Slovenia

Zero rating, called free data transfer in Slovenia, was a common practice among operators and existed in country since 2007. Consumers could choose from a number of zero rating programs, including free access to music, online storage, and customer service applications to manage their mobile subscriptions. The net neutrality law in Slovenia was created primarily about concerns of theoretical harms and was the culmination of more than a year of public proceedings⁹², but did not include an official investigation of traffic management practices.⁹³ A line about price differentiation was removed in the final version of the law which was promulgated on December 31, 2012.⁹⁴ This omission appears to be a linchpin for the legal battle on zero rating going forward.

To understand the sequence of events, a personal interview⁹⁵ was conducted with Dr. Dusan Caf, a leading net neutrality advocate who has been instrumental to effecting a ban on zero rating in Slovenia.⁹⁶

Caf holds two key positions⁹⁷ in telecommunications, one as Chair of the Electronic Communications Council (a body appointed by the National Assembly) and another as

⁹⁰ Ibid

⁹¹ van Eijk, Nico, *The Proof of the Pudding Is in the Eating: Net Neutrality in Practice, the Dutch Example*, SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, August 2, 2014), <http://papers.ssrn.com/abstract=2417933>.

⁹² "Posvet v Zvezi Z Osnutkom Predloga Novega Zakona O Elektronskih Komunikacijah," *Ministrstvo Za Visoko Šolstvo, Znanost in Tehnologijo*, November 10, 2011, http://www.arhiv.mvzt.gov.si/si/delovna_podrocja/informacijska_druzba/elektronske_komunikacije_in_posta/javne_obravnavne_predlogi/arhiv/.

⁹³ "I am afraid that there wasn't any comprehensive analysis carried out (related to net neutrality) prior to the adoption of the current electronic communications law and net neutrality provisions - neither by the NRA nor the ministry," notes Dusan Caf in an email August 9, 2015.

⁹⁴ Article 203 of the Electronic Communications Act (Official Gazette of the Republic of Slovenia, Nr. 109/12, 110/13, 40/14 – ZIN-B and 54/14 – CC dec.)

⁹⁵ Telephone Interview August 7, 2015

⁹⁶ "Pripombe Na Osnutek Predlog Zakona O Elektronskih Komunikacij," *Svet ZA Elektronske Komunikacije*, July 5, 2012, <http://www.sek-rs.si/1/Aktualno/tabid/107/ID/3/Pripombe-na-osnutek-predlog-Zakona-o-elektronskih-komunikacij-ZEKom-1.aspx#.Vc4MNa1J24B>.

"Pripombe Na Predlog Zakona O Elektronskih Komunikacijah (ZEKom-1) - EPA: 667 - VI > SEK," *Svet ZA Elektronske Komunikacije*, November 18, 2012, <http://www.sek-rs.si/1/Aktualno/tabid/107/ID/275/Pripombe-na-predlog-Zakona-o-elektronskih-komunikacijah-ZEKom-1--EPA-667--VI.aspx#.Vc4MnK1J24B>.

"Predlog Amandmajev K Predlogu Zakona O Elektronskih Komunikacijah (ZEKom-1, Druga Obravnava, EPA 667 - VI) > SEK," *Svet ZA Elektronske Komunikacije*, December 20, 2012, <http://www.sek-rs.si/1/Aktualno/tabid/107/ID/274/Predlog-amandmajev-k-predlogu-Zakona-o-elektronskih-komunikacijah-ZEKom-1-druga-obravnavna-EPA-667--VI.aspx#.Vc4M8a1J24B>.

Chair of the Council of the Agency for Communications Networks and services of the Republic of Slovenia (AKOS, the telecom regulator).⁹⁸ An engineer by training, Caf has been a consultant to a number of telecom and IT companies in Slovenia, though he assures that his honorary positions are not a conflict of interest, and if they were, he would exclude himself from voting.⁹⁹

In a blog¹⁰⁰ on December 9, 2013 Caf decried the state of the Slovenian telecom market 15 years after liberalization. The media is a poor observer, and the debate as lacking depth, he wrote. "Professional analysis" is needed to explain the gap, and "Captured regulators" are the root of the problem, he declared. To address these problems, he proposed increasing the transparency of the regulatory process, strengthening the efficiency and effectiveness of regulation, strengthening the development of electronic communications, and improving the wellbeing of citizens.

Caf called Slovenia's net neutrality law strict, but not being implemented prior to 2015. The problem with zero rating emerged with mobile broadband prices being too low. He cited the offer of €25 for 1 GB of data and €30 for 100 GB. Caf called these offers "good for consumers in the short run, but not sustainable in the long run" and believed that they needed to be stopped. "This is not a two-sided market," he said.

Caf does not know whether consumers complained about the offers to the regulator. His organization is not privy to such complaints. They only learn what is published by the telecom regulator or the competition authority. However one person did complain to the SEK, that he wanted to use his account balance to choose which sites should be zero rated.

One June 22, 2014 Caf published a blog¹⁰¹ titled "Free download mobile content jeopardizes the neutrality of the Internet" critiquing the zero rating offers of Telekom Slovenia and Si.mobil which "unduly encourage (users) to procure their services or applications and their partners, because of the high price of data transfer but they complicate the selection and use of competing products." Caf also notes, "Mere legal protection of net neutrality is not enough. It is important that AKOS enforce the regulatory principles" and that the SEK discusses the situation at its June meeting, he notes. Caf said that he made a point to write in English to bring international attention to the issue in Slovenia

On behalf of SEK on July 17, 2014, Caf made a formal complaint about zero rating to the telecom regulator, but did not receive a response. He believed that the regulator was reluctant to make a ruling on zero rating.

Caf said he made a point to mention only Telekom Slovenia and Si.Mobil in his complaint. He did not want to implicate the smaller providers Tasmobil and Amis because they need zero rating offers to differentiate themselves in the marketplace. The complaint describes

⁹⁷ "Dusan Caf to Head Slovenian Regulator - Report," *Telecompaper*, January 14, 2014, <http://www.telecompaper.com/news/dusan-caf-to-head-slovenian-regulator-report--993155>.

⁹⁸ The Agency Council is authorised to give opinions to the programme of work, the financial plan and the annual report of AKOS; approve the statute adopted by the Agency Director; propose the appointment or dismissal of the Agency Director; propose a temporary prohibition on the performance of functions by the Director; propose the early dismissal of members of the Agency Council. The Members of the Agency Council or persons authorised by the Agency Council may inspect the business accounts as defined in the Slovenian Accounting Standards and the AKOS' accounting documents. Upon every such request by the Agency, the Agency director must submit to the Council a report on the operations of the Agency and any other information that the Agency Council requires in order to carry out its functions. The Agency Council may suggest improvements in the operation of the Agency to the Agency director, as well as point out to him any irregularities in the AKOS operations and notify the competent bodies of these irregularities. "Profile of AKOS," February 6, 2014, http://epra3-production.s3.amazonaws.com/organisations/documents/30/original/Profile_AKOS_SI_02_2014_final.pdf?1391706889.

⁹⁹ Ales Percic, "Neuradno: Na Čelo Sveta Akosa Dušan Caf," *Finance.si*, January 29, 2014, <http://www.finance.si/8355990/Neuradno-Na-%C4%8Delo-sveta-Akosa-Du%C5%A1an-Caf>.

¹⁰⁰ "Competitive Analysis & Foresight: Ugrabljeni Regulatorji," *CAF*, December 9, 2013, <http://blog.caf.si/2013/12/ugrabljeni-regulatorji.html>.

¹⁰¹ "Competitive Analysis & Foresight: Brezplačen Prenos Vsebine Ogroža Nevtralnost Mobilnega Interneta," *Competitive Analysis & Foresight*, (June 22, 2014), <http://blog.caf.si/2014/06/brezplacen-prenos-vsebine-ogroza-nevtralnost-mobilnega-interneta.html>.

that Telecom Slovenia's unlimited data transfer offers the ability to view the matches of the UEFA Champions League, watch films HBO GO, and access proprietary online storage. Telecom's own service" discriminates against end users using competing products", notes the complaint.

The complaint is critical of Si.Mobil's unrestricted offer to view the World Cup and unlimited access to the VOYO content over a two year period. It claims that free video data is problematic because it is a fastest growing category of service and makes up the bulk of internet traffic, and that offers with unmetered traffic exceed the amount of data used on basic packages. Moreover operators are offering unmetered service to the exclusive content they have licensed but not giving the same conditions to competing content. It is described as discriminatory to users because they have to use metered access to enjoy competing services on the same platform. The letter states that operators are violating Slovenia's net neutrality rules and that Telecom Slovenia is abusing its dominant position in the marketplace.

Caf regrets that, in the end, the regulator punished the smaller providers by ordering them to stop all their zero rated practices, while the incumbent received a lighter reprimand. Telekom Slovenia was required only to end the zero rated music service for Deezer, but was allowed to keep zero rating its proprietary video application. That the smaller operators received a tougher punishment supports Caf's assertion that the telecom regulator favors the state-owned Telecom Slovenia.

Concurrently Caf sent the complaint to the Slovenia Competition Protection Agency, which did reply on September 4, 2014.¹⁰² They recognized the concerns about discriminatory traffic management, but note that the risk is significantly lower in a transparent and competitive environment. The net neutrality puts emphasis on the requirement that operators transparently disclose their practices regarding managing internet traffic. In a transparent environment, consumers, if unhappy with traffic management practices, can switch providers. They observe that differentiated offerings are important because they are

. . . the fruit of competitive advantages and therefore increase efficiency and bring consumers the benefits (i.e. cheaper cinema tickets for students). Thus price discrimination increases the availability of the product to more cost-sensitive consumers and ensures an overall increase in sales volume, thereby lowering average the overall costs and increasing efficiency. The boundary between pro-competitive and anti-competitive conduct can be thin, so borderline cases should be assessed. But intervention is necessary only in cases where economic analysis shows that the injury to the consumers outweigh the benefits to consumers.

The competition authority notes that Telecom Slovenia has not abused its market power. It could be tested with an in-depth investigation that would begin with defining the relevant market, in this case the market for data transfer. It notes that Slovenia is a market with at least three mobile providers which will evolve significantly in the coming years. It notes that the market for mobile services is primarily characterized by call services, and with the different prices for calls on and off net, the effect of data transfer services is negligible. Moreover, even though Telecom Slovenia has a 50 percent market share and falling, it does not have the power to control the market for Internet applications, even with its zero rated offer. It notes,

Vertical relationships can be bring benefits to consumers. For example, by offering free Internet encourages Telecom Slovenia to invest in expensive exclusive

¹⁰² A copy of the reply is not available on the authority's website, however it is referenced in the EU Scoreboard document on the link for Slovenia. "Scoreboard 2015 - Report on the Implementation of the Telecommunications Regulatory Package (per Country)," *Digital Agenda for Europe*, June 19, 2015, <http://digital-agenda/en/news/scoreboard-2015-report-implementation-telecommunications-regulatory-package-country>.

content such as UEFA Champions League. Si.mobil might not have invested EUR 60 million in the acquisition of spectrum if it expected that it would be not be able to grow the market for newly built broadband 'highways' through various campaigns for free use of data transmission.

It notes further that sports rights and copyrighted content when licensed to a buyer (e.g. Telecom Slovenia) and offered in a zero rated program do not constitute a violation of competition. Moreover the operator's offer of Deezer and a proprietary cloud service does not harm the market for such services, as there are many choices worldwide from which users can access.

As for the price of the offer, the competition authority notes that the operator does not engage in either improving the quality of the zero rated products or degrading other applications, but rather in a form of discount or positive discrimination. To assess this, it is necessary to examine the price and costs of the offer and the services contained within. It observes that the voice is the largest cost driver and that the use of Deezer is negligible, amounting to a few cents out of an offer of €26 per month.

The competition authority notes that the emergence of zero rating reflects fierce competition in the mobile marketplace and even with current limits, consumers still have the freedom to decide what kind of content they want.

It notes further that the net neutrality rules are designed to protect competition for the purpose of the benefit of consumers. It is therefore necessary to determine the effect of zero rating on consumers. No intervention should be made if there is no evidence of consumer harm. The competition authority describes situations in which it considers extreme and necessary for intervention, for example the Microsoft browser case, but the zero rating issue in Slovenia is not one. The authority made a point as well that critics consider the Dutch net neutrality too extreme because operators are restricted from making offers.

Caf rejected the competition authority's conclusion, in particular because they make an analysis based on mobile prices from 2012. However if 2014 prices were used, the impact of zero rating would likely be even smaller because prices have fallen in the period.

Caf worked with the country's leading newspaper to bring attention to the issue. On November 12 an article¹⁰³ appeared in the newspaper *Delo* (English: Labour) by Matjaž Ropret¹⁰⁴ introducing the topic of zero rating as problematic and reporting on developments in the USA. The article concludes with a screen shot of Frank Underwood of Netflix's "House of Cards" with the caption "You need the gatekeeper." Underneath the photo is the caption "Providers such as Netflix in the US have paid operators for smooth transfer of content to subscribers."

The article links to another article that appeared in *Delo* from Slovenian correspondents in the US titled "Political cuisine on the future of the Internet: White House asks independent telecom commission for the Internet be declared a public service, which is controlled by the state."¹⁰⁵ The article describes President Obama's net neutrality announcement and some political background in the US. In a sidebar it notes that after ratifying its own net neutrality law two years earlier, Slovenia experienced its first complaint under the concept of zero rating.

¹⁰³ Matjaz Ropret, "Izmuzljiva Internetna Nevtralnost," *Infoteh*, November 12, 2014, <http://www.delo.si/mnenja/blogi/izmuzljiva-internetna-nevtralnost.html>.

¹⁰⁴ Matjaz Ropret, "Tehnokamra – Internetna Nevtralnost," *Delo*, November 14, 2014, <http://www.delo.si/multimedija/video/tehnokamra-internetna-nevtralnost.html>.

¹⁰⁵ Sebastijan Kopusar, "Politične Kuhinje O Prihodnosti Interneta," *Delo*, November 12, 2014, <http://www.delo.si/znanje/infoteh/politice-kuhinje-o-prihodnosti-interneta.html>.

On November 14, *Delo* published a short article¹⁰⁶ embedded with a video¹⁰⁷ highlighting Barack Obama's previous net neutrality announcement¹⁰⁸ followed by a presentation by Dusan Caf and *Delo* tech journalists Matjaž Ropret and Lenart J. Kučič¹⁰⁹ discussing the situation of net neutrality in Slovenia. During the discussion Caf produces a tablet where he points to a copy of the Slovenia net neutrality law and how the section on zero rating was removed as part of the final rulemaking.

A blog¹¹⁰ by Caf on December 5 characterizes Slovenia as a country that has net neutrality rules but does not enforce them. It describes a country where "Net neutrality (is) weakened by industry lobbying and inactive regulator" and recounts how zero rating, originally included in the Slovenia rules was removed by "lobbying from the industry". Caf also warns about the "spreading of discriminatory practices" and refers to a study of zero rated offers in the EU.¹¹¹ He notes that SEK sent a letter to AKOS describing the discriminatory practices of Telekom Slovenije but "based on the regulator's strong pro-industry stance the outcome is uncertain."

It is not clear whether from media pressure or international influence, but AKOS relented and commenced a review on zero rating on December 18. Soon after Caf appeared in an interview¹¹² in *Europolitics* in which the journalist questioned whether undue pressure has been put on the Slovenian telecom regulator. Caf notes that even though authorities pronounce zero rating beneficial to consumers, the practice is still problematic. "An efficient regulator is required in order that legislation adopted should really be implemented. However, I think it is important to resolve the matter of zero rating, and not to tie competition law on neutrality, since procedures and market analyses take too long," he notes.

On January 10, 2015 *Delo* published an article¹¹³ of some 2500 words explaining net neutrality by comparing the internet to the road network where all drivers have the same rights. Telecom operators are characterized as deploying sneaky business models such as zero rating. Dusan Caf's efforts to end the practice are described.

A blog¹¹⁴ from Caf appeared two days later in an attempt to increase the pressure on the telecom regulator to ban zero rating. He refers to the complaint SEK made to the regulator in July 2014 followed by "nearly three months of analysis, in which we analyzed the controversial business practice of mobile operators." He notes that at the end of 2014 Telekom Slovenia had 50% market share and Si.Mobile 36%.

On January 23, 2015 AKOS announced its decision,¹¹⁵ finding Telekom Slovenia's zero rating of Deezer and Si.Mobil's zero rated offering of the cloud platform Hangar Mapa to be net neutrality violations. An announcement in English followed on January 26, the

¹⁰⁶ Matjaz Ropret, "Tehnokamra – Internetna Nevtralnost," *Delo*, (November 14, 2014), <http://www.delo.si/multimedija/video/tehnokamra-internetna-nevtralnost.html>.

¹⁰⁷ *Tehnokamra - Internetna Nevtralnost*, 2014, https://www.youtube.com/watch?t=186&v=_PBaeuvDC_w.

¹⁰⁸ Ezra Mechaber, "President Obama Urges FCC to Implement Stronger Net Neutrality Rules," *The White House*, November 10, 2014, <http://www.whitehouse.gov/blog/2014/11/10/president-obama-urges-fcc-implement-stronger-net-neutrality-rules>.

¹⁰⁹ Lenart Kucic, "Lenart J. Kučič Blog," accessed July 27, 2015, <http://www.lenartkucic.net/about/>. The journalist also writes books critiquing the media. Lenart Kucic, "Lenart J. Kučič's Bibliography," accessed July 27, 2015, <http://www.lenartkucic.net/bibliography/>.

¹¹⁰ "Competitive Analysis & Foresight: Zero-Rating Violates Slovenian Net Neutrality Law," *Competitive Analysis & Foresight*, December 5, 2014, <http://blog.caf.si/2014/12/zero-rating-violates-slovenian-net-neutrality-law.html>.

¹¹¹ "List of 75 Zero-Rated, Potentially Anti-Competitive Mobile Applications/services, Violating Net Neutrality, in EU28," *DF Monitor*, October 2014, http://dfmonitor.eu/insights/2014_oct_zerorate/.

¹¹² Nathalie Steiwer, "Zero Rating: Slovenian Regulator Exposed to Excessive Pressure," *Europolitics*, January 5, 2015, <http://europolitics.info/tech/zero-rating-slovenian-regulator-exposed-excessive-pressure>.

¹¹³ Lenart Kucic, "Internet Nevtralen Kot Javno Cestno Omrežje?," *Delo*, January 10, 2015, <http://www.delo.si/sobotna/internet-nevtralen-kot-javno-cestno-omrezje.html>. See appendix for Google translated article

¹¹⁴ "Competitive Analysis & Foresight: Nevtralnost Interneta vse Bolj Vroč," *CAF*, January 12, 2015, <http://blog.caf.si/2015/01/nevtralnost-interneta-vse-bolj-vroca.html>.

¹¹⁵ "Akos Ugotovil Kršitve Načela Nevtralnosti Interneta," *Akos*, January 23, 2015, <http://www.akos-rs.si/akos-ugotovil-krsitve-nacela-nevtralnosti-interneta>.

only news story on the English language section of its website.¹¹⁶ Telekom Slovenia's zero rating of UEFA Champions League, HBO GO, and the online storage TviN continues. In neither case did the regulator mention any evidence for harm to consumers or competition because of the offers.

On February 20, 2015 AKOS similarly found Amis Mobile with its proprietary TV service and Tusmobil with its customer service platform in violation of net neutrality.¹¹⁷ The operators were required to end the banned practices in 60 days.

In response Caf posted a blog¹¹⁸ celebrating the regulator's decision banning offers from Telekom Slovenia and Si.Mobil. He notes that SEK conducted an examination of the practices and that telecom regulators attended its meetings. He notes that the competition authority "issued the opinion after a consultation with AKOS in which regulators exchanged and shared views and information on net neutrality issues." He describes the competition authority opinion as "based on dubious facts and presumptions." He faults the competition protection authority for declining to begin an investigation.

Caf recounts his efforts to speed the regulatory process and enlighten senior officials whose views were "generalized and lacked thorough analysis". He recounts the steps that made the ban possible: his blogs and articles, his analysis indicating a potential breach of competition law, and the support of leading technology journalists. He reiterates his earlier blog of December 5 of why zero rating is a violation of the Slovenian net neutrality law. He notes that while the decisions only apply to music and cloud services, that they should also apply to video streaming. He notes that, "Consumers may shortly expect new data plans and enjoy open and non-discriminatory access to the internet."

Following the announcement of the banning of the zero rated services of Tusmobil and Amis, Caf penned another blog.¹¹⁹ While he was pleased with the action against the other operators, he called the allowance of zero rating by Telekom Slovenia "unacceptable and AKOS shall intervene as soon as possible. There is no legal ground in communications or media law for any exemption of internet streaming of sporting events or cloud storage traffic."

He notes that these "the decisions have already had a positive impact and, as we correctly predicted, consumers benefited from the regulator's net neutrality decisions. Telecom Slovenia and Si.mobile have both come up with special offers and packages with larger data caps or inexpensive data cap options. Consumers may shortly expect even more plans with larger data caps."

Caf describes the mobile market today as competitive, particularly because of price competition driven by American owned cable provider Telemach in their cross-selling of service from Tusmobil.

On June 27, 2015 an article¹²⁰ explores Caf's evolution from professor and consultant to the telecom industry and Chamber of Commerce to his most recognizable position as the

¹¹⁶ "AKOS Finds Violations of the Principle of Net Neutrality," *Akos*, January 26, 2015, <http://www.akos-rs.si/akos-finds-violations-of-the-principle-of-net-neutrality>.

¹¹⁷ "Akos Ugotovil Kršitve Načela Nevtralnosti Interneta Tudi Pri Storitvah Amisa in Tušmobila," *Akos*, February 20, 2015, <http://www.akos-rs.si/akos-ugotovil-krsitve-nacela-nevtralnosti-interneta-tudi-pri-storitvah-amisa-in-tusmobila>.

¹¹⁸ "Competitive Analysis & Foresight: Telekom Slovenije and Si.mobil Found in Breach of Net Neutrality," *Competitive Analysis & Foresight*, January 25, 2015, <http://blog.caf.si/2015/01/telekom-slovenije-and-simobil-found-in-breach-of-net-neutrality.html>.

¹¹⁹ "Competitive Analysis & Foresight: Another Win for Net Neutrality Advocates in Slovenia: AKOS Issues New Decisions Limiting Zero-Rating," *Competitive Analysis & Foresight*, February 22, 2015, <http://blog.caf.si/2015/02/another-win-for-net-neutrality-advocates-in-slovenia-akos-issues-new-decisions-limiting-zero-rating.html>.

¹²⁰ Ales Lednik, "Večer: Kršijo Zakon, Nihče Ne Trzne," *Vecer*, June 27, 2015, <http://www.vecer.com/clanek/201506276125307>.

leader of the Council for Electronic Communications. The same day two additional articles^{121 122} appear on Caf and his accomplishments.

On July 1, 2015, the day after the EU's concluded agreement on net neutrality, Caf is interviewed¹²³ by Slovenian Radio and TV saying that Slovenia users are less protected, as the new EU rules "override" Slovenia's. The article notes a tweet from a Ministry of Education official who sees it differently, Slovenia "is (was) alone in demonstrating the principle is the wrong approach," he notes.

The European Union is the midst of an effort to create a Digital Single Market. One of goals of which is to strengthen European based small and medium enterprises (SME) on the Internet.¹²⁴ Once it took effect, AKOS's ban on zero rating caused traffic to certain Slovenian content and applications to fall by half. Operators' customer support centers saw a five-fold increase in telephone calls because subscribers could no longer top up their account balance online for free.¹²⁵ A Slovenian cloud provider experienced a marked, but not devastating, decline in traffic as a result of the ban.¹²⁶ To be sure, no content provider's marketing strategy relies entirely on zero rating.

Operators are appealing the regulator's decision on material and procedural grounds. They have also requested a constitutional review of the nation's communications law. Should the national court be unable to address the issue, it will be referred to the Court of Justice of the European Union. Operators argue that AKOS' decision contravenes BEREC's and EU's view on zero rating, which they call "sponsored connectivity" and a competitive practice. They charge that AKOS acted prematurely, given that pan-EU rules were still be considered. The current regulatory framework prohibits regulation beyond the exhaustively listed authorizations, of which the ban is. Moreover Slovenia and Netherlands are the only two European countries with "fundamentalist interpretation" of net neutrality, and they cannot exceed EU norms.

Testing the alleged harms of zero rating

The case studies provide some information about zero rating in the specific countries. Together with market research on mobile applications, we attempt to find evidence for the claims of those opposed to zero rating. Given their specific arguments, we pose the following assertions and attempt to test them.

1. The operator that offers zero rating will win market share.
2. The zero rated service will win market share.
3. The presence of zero rating will preclude the emergence of new applications and services.
4. Users do not go to non- zero rated content. If Facebook is free, they don't venture beyond it.
5. Operators that are zero rating their own content foreclose other content.

Additionally we want to know whether consumers experience harm. A consumer harm test¹²⁷ examines whether the following results from a particular activity: higher prices, lower output; or reduced product innovation. A related set of questions in competition analysis have to do with whether a firm possesses significant market power (SMP) and

¹²¹ "Dušan Caf : V Državni Lasti Bo Telekom Težko Konkurenčen," *Finance.si*, June 27, 2015, <http://www.finance.si/8824292/Du%C5%A1an-Caf-V-dr%C5%BEavni-lasti-bo-Telekom-te%C5%BEko-konkuren%C4%8Den>.

¹²² "STA: Caf Za Večer: V Državni Lasti Bo Telekom Težko Konkurenčen," *Sta*, June 27, 2015, <https://www.sta.si/2150491/caf-za-vecer-v-drzavni-lasti-bo-telekom-tezko-konkurencen>.

¹²³ "Zvodeneli Kompromis Medmrežne Nevtralnosti Pustil Nezadovoljstvo," *Prvi Interaktivni Multimedijški Portal, MMC RTV Slovenija*, July 1, 2015, <http://www.rtvlo.si/znanost-in-tehnologija/zvodeneli-kompromis-medmrezne-nevtralnosti-pustil-nezadovoljstvo/368779>.

¹²⁴ <http://ec.europa.eu/priorities/digital-single-market/>

¹²⁵ Confidential interview

¹²⁶ Confidential interview

¹²⁷ *The Foundations of European Union Competition Law: The Objective and Principles of Article 102*

<http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199226153.001.0001/acprof-9780199226153-chapter-8>

whether the firm exercises it. So for example, if a firm without market power employs zero rating, it need not be banned because it is not a threat to the marketplace. The Slovenian competition authority described this.

Testing the assertions is not necessarily easy because critics of zero rating don't provide specifics for their charges. For example, how is market share for operators defined, as subscribers or revenue? How is market share defined for services, by number of downloads, users, usage, or revenue per user? These are just a few of the relevant parameters to consider, but the market research data is limited to app store rank. It does not provide the specific number of downloads or revenue per application.

The market for mobile applications has some similarity to search engines and web traffic in that the most popular destinations gather a disproportionate amount of traffic. They have a typical power law distribution in which the top twenty destinations gather 80 percent or more of traffic. But while it is next to impossible to break into the top 10 or even 25 of the world's most popular websites, new applications emerge in the top 10 of mobile app stores every month. New apps tend to emerge by "viral" means (popularity in social networks). There is an notion that an app could get a shortcut to the top rank in the app store through zero rating, but our investigation could find no examples of such overnight success. In any event, we did observe that there are a number of mobile apps that are popular worldwide, regardless of the country or offer.

To understand the market for mobile applications we used the public version of AppAnnie.com, a leading market research tool for mobile applications which aggregates download and revenue data for app stores by country and app marketplace (Google Play, Apple App Store etc). The number of downloads per app is not given, but appearance in the top ten of the app store indicates high level of downloads, approximately 10,000 to 25,000 per day. While it will depend on the country and the category, the top 100-200 apps are significant for the market, assuming the depth of the particular category. After position 200 the significance falls precipitously and below 300 ceases to matter. One can understand the phenomena from Google's search engine that the first three results get the lion's share of clicks, followed by the remaining 7 on the first page, but generally users never go past the first page. Thus appearing in the top 10 for the category is important.

AppAnnie.com offers more than a dozen categories for apps including health, travel, kids, business and so on, but three key categories are messaging/social networking apps (WhatsApp, Facebook Messenger, Line, KakaoTalk, WeChat); Entertainment (Netflix, YouTube, HBO, Hulu), and Games (Clash of Clans, Candy Crush, Game of War). The platform also organizes the information for free and paid applications. This is significant because how an application earns revenue varies. For example, some apps earn a fee when a user downloads them in the store. In other cases, the app is free but revenue is earned inside the app either through advertising (itself a form of zero rating, free app subsidized by advertising) or in-app purchases, for example micro-transactions within game play. So, popularity does not necessarily translate to profitability.

Music streaming took off quickly on mobile phones, but video streaming has taken a longer time to take hold. This is due to in part to large file size (which been addressed through better content formatting and application design, more advanced devices, and new networks) and copyright. This is important from a net neutrality perspective because while one may want to access a particular mobile entertainment application, it may be blocked because of geographic or copyright restriction. As such, Netflix, HBO Now and Hulu are highly ranked apps and top revenue earners in the US where they have licensed content for the region.

However Netflix has licensed content for a number of geographies as is a popular app in many countries. The rise of video streaming via mobile is driving a trend for cord cutting.¹²⁸ It is important to note that, with the exception of certain copyright content, mobile app markets are essentially global. Users are able to access applications and services from around the world, as well as from their own country. However it brings attention to important issues for the European Union as they would like to see greater visibility and success for European-based innovation.

While Google and Facebook dominate a number of categories, games is one area where new players from a variety of countries have emerged with popular titles and sustainable business models. This includes of course publishers from the US, China, South Korea, and Japan, but a massive multiplayer game such as Agar.io from Miniclip in Switzerland has taken the world by storm, as have other titles from Vietnam and France.

While the web has been, and remains to a large extent, an American phenomenon, as measured by the proliferation of American websites dominating traffic and revenue, the mobile Internet is driven in large part by China, a country with large base of broadband-connected smartphone users and world class application providers. In fact Apple's App Store has more downloads in China than in the US.¹²⁹ China has a number of powerhouse video streaming providers including Tencent, Baidu's iQIYI, Sohu TV, Youku Tudou, and LeTV. AppAnnie.com notes,

Over the past few years, these services evolved from YouTube-like user-generated content video platforms to Netflix-like providers of professional shows. They have successfully attracted audiences from traditional broadcasting TVs by offering the content on omni-platforms including desktop, mobile, set-top boxes and digital TV. They have also enticed users to their platforms by securing rights to a broad range of foreign and domestic premium content including drama series like House of Cards and The Wife's Lies, hit TV shows like Voice of China and Happy Camp, recent movies like Interstellar and Gone With the Bullets and live broadcasting of premium sports like the English Premier League and the NBA, as well as making their own exclusive content. Mobile video streaming delivers significant value to consumers by enabling them to consume content anytime and anywhere on devices that are more affordable than TVs and PCs. Recognizing this huge opportunity, traditional TV networks in China like Hunan Broadcasting System have also joined the competition for mobile audiences by launching their own apps like ImgoTV.¹³⁰

Our examination consisted of reviewing the performance of the various zero rated applications in the app stores amongst other mobile applications the period of January 2013 through July 2015 for Netherlands (Spotify, Sizz, HBO Go) and Slovenia (TViN, Deezer, and others). For Chile we began the observation from January 2012 through the present for WhatsApp. Data is offered on a monthly basis, so we developed annual averages to describe relevant movement year over year. We also examined the prevalence of local country applications, as this is seen as an important outcome for many policymakers. Market share data on the operators was found on the respective regulators' websites.

¹²⁸ "HBO NOW Pushing the Cord-Cutting Trend," *App Annie Blog*, August 4, 2015, <http://blog.appannie.com/hbo-now-pushing-the-cord-cutting-trend/>.

¹²⁹ "Report: China Surpasses United States by iOS Downloads," *App Annie Blog*, April 28, 2015, <http://blog.appannie.com/china-surpasses-united-states-ios-downloads/>.

¹³⁰ Ibid

	Chile	Netherlands	Slovenia
The operator that offers zero rating wins market share.	Since launch, Virgin Mobile has grown consistently since launch but has less than 1% of the Chilean mobile market. It is difficult therefore to attribute its success to zero rating because the rate is the same with or without the zero rated offer.	No. Between 2012-2014, market share amongst mobile operators in the Netherlands was relatively constant, within 5 percent. A modest gain for service providers and virtual providers has been recorded over the period. ¹³¹ KPN, which had a zero rated offer, experienced a modest decline.	No. The incumbent with two zero rated offers experienced a reduced market share.
The zero rated service wins market share.	Can't be definitively determined. WhatsApp was already a popular service in Chile before zero rating began. On Apple devices it actually lost market share while on Android it stayed relatively constant. Messenger, Twitter, Skype, Badoo, Google Hangouts, Emoji, LINE, Telegram, imo, Talking Tom and Viber are also popular messaging apps.	Vodafone's Sizz never entered the top 500 most downloaded apps for the period. HBO Go was #450 in 2012, #483 in 2013 and not in the top 500 in 2014-2015. There is no consistent offer for Spotify during the period, and it was frequently not zero rated. However its ranking increased from an average of 42 (Apple) and 30 (Android) in 2013 to from 12 and 8 respectively in 2015. Globally Spotify has increased ranking in all countries, whether zero rating is present or not.	No for Telecom Slovenia's TViN. The ranking falls from 67 to 85 between 2013 and 2015 in the Apple store. No for Deezer; it fell from 116 to 133 for the period. VOYO fell from 116 to 125. For Hangar Mapa, Tsukabina, and TV.Si, they either never appear or show briefly with a low rank. For HBO Go, it rises from 282 to 68. As of Aug 15, 2015, it ranks at 291 for Apple.
The presence of zero rating will preclude the emergence of new applications and services.	Can't be determined. Facebook's Messenger and WhatsApp, ranked closely. Twitter, Instagram and Snapchat are popular. For Chilean apps as of Aug 15, 2015 in Apple, The Voice TV show app #1; marketplace Yapo at 12 (14 in Google), and the government's "Youth Card" at 21, allows youth differentiated pricing for various activities in Chile.	No. New apps from a variety of countries appear each month in the ranking. However it does not appear that the Dutch net neutrality law stimulates new Dutch applications, as was hoped. Only two Dutch apps appear in the top 25 of top ranked apps in either Apple or Android.	No. New apps from a variety of countries appear each month in the ranking. As of Aug 15, 2015 for Slovenia apps in Google Play, the market Bohla appears at 48, and 24ur.com, Slovenian news at 76. For Apple, the ASfalt traffic app at 19, bohla.com at 30, BOX app by Telekom Slovenija to manage TV programs, and 24ur.com at 90.

¹³¹"Onderzoek Telecommonitor derde kwartaal 2014," Onderzoek, *ACM.nl*, (February 11, 2015), <https://www.acm.nl/nl/publicaties/publicatie/13838/Telecommonitor-derde-kwartaal-2014/>.

As for the assertion that users do go beyond zero rated content, we could not find evidence for that assertion in any of the three countries. As for the assertion that operators which zero rate their own content foreclose other content, we could not find any evidence for that either. The only country with proprietary content was Slovenia. The operators' content was extremely niche-oriented competing in a large, global marketplace. The content appears to be non-rivalrous, that is its presence is appreciated by those who value it, but it does not detract from the experience of other users. In any event, its rank is so low that it does not "threaten" other content.

As pointed out by the competition authority in Slovenia, the zero rated offers in many cases consume only minimal data, and at best, may only impact price by a few cents per month. In other words, the data consumption for apps such as Spotify, WhatsApp, and Deezer is so small in relation to other services that it cannot be observed. If anything, purveyors of the most popular applications work to reduce the data consumption of their applications. Facebook re-engineered its mobile platform, decreasing average monthly data use from 14MB/mo to 2MB/mo.¹³²

Naturally video applications consume the most data, so these cases are interesting to review. Vodafone Netherlands only had 3200 subscribers for its zero rated HBO Go application when it was ordered to end the practice. That the application was zero rated did not deter other content in the marketplace. Vodafone did not gain an advantage over competitors by zero rating the app.

In the case of Slovenia, the zero rated offers actually increased output on the market, even though they were not the most widely demanded application. For example Telecom Slovenia purchased sports rights and extended that benefit to its customers doubly with its investment and by zero rating the application. But the zero rated TViN service actually suffered a loss in ranking in the app store during the period. VOYO was a content service that was zero rated for a two year period, and it suffered a decline in app store rank as well. It shows that not all content is valued equally if it is free. Zero rating is not the competitive advantage that detractors like to describe it. More likely, as Baumol described, it is just one of a range of offers that providers have to make to survive in the marketplace.

It cannot be observed that zero rating has reduced innovation in any of the countries. In anything bans on the practice have hurt users the most. This is particularly the case for the subscribers of Vodafone and Tasmobil. The bans against customer service applications such as Sizz (Vodafone Netherlands) and Tuskabina (Tasmobil Slovenia) were offered as courtesies, so that customers would not have to use data to top up their mobile subscription or minutes to call customer support. Neither of these operators hold dominant market positions anyway so punishing them for consumer-friendly activities seems harsh.

On balance for the three countries, it appears that the impact of zero rating is negligible but not negative.

¹³² See Mark Zuckerberg comments at Mobile World Congress in 2014 at 28:20 <https://www.youtube.com/watch?v=VHwkHZpXqWc>.

Zero Rating and Freedom of Speech

There is no doubt that zero rating is a potent policy issue. For advocates in many countries, zero rating and the larger net neutrality debate has become synonymous with free speech.

However it has been observed that making net neutrality laws in developing countries is premature because the majority of the population of these countries has never been online, and as such, cannot experience the Internet for themselves. Zero rating is perhaps the quickest, cheapest way to get the poor online, but that option is vigorously challenged.

It may be the case that people in developing countries could benefit from net neutrality, but the choice of how the Internet should be is made for them. The decision to make net neutrality rules has path dependencies with implications for more than just network access. Net neutrality rules across 20 countries have provisions related to copyright, data retention, pricing, surveillance, and more.¹³³

Compared to people who are not online, net neutrality advocates are elite, sophisticated, and well-educated. They probably have computers at home with wireline access as well as the latest smartphone. A low or no data cap plan is their preference. But people who have never been online do not have the same expectation of Internet access. For a Chinese, the Internet might be equated a non-branded smartphone, WeChat messaging, Baidu search, and Youku video. It need not conform to a gold standard of neutrality, but it still can be a thrilling experience.

For Westerners, concepts such as free speech and freedom of expression are established and enshrined in constitutions and case law. But for a number of developing countries, these concepts are still in the making. There is no doubt that Internet freedom is important in these countries, as it is everywhere. But where Internet penetration is low and television, radio and print are still the dominant media, the pursuit of freedom for all media may be more appropriate than just net neutrality.

In any case, the question may boil down to whether those not yet online have sufficient economic power. As mentioned, developing countries may have mobile networks but still lag on key indicators for quality of life. There is no doubt that zero rating offers an opportunity for poor people to access the Internet, become politically aware, and hold leaders more accountable. Such openness could be destabilizing for the status quo.

This paper has focused specifically on Chile, Netherlands, and Slovenia. The following section offers an American perspective on net neutrality, particularly in light of 9 legal challenges to the FCC's net neutrality rules, the third time the telecom authority is in court for making rules. However even Slovenia has free enterprise laws. Such arguments may be important in a former communist and war-torn country where entrepreneurs and private enterprises try to build a market economy.

Critics contend that zero rating is "discriminatory", but in the United States, zero rating is likely a form of speech that is protected by the First Amendment of the Constitution.¹³⁴ Zero rating conforms to all aspects of the classic definition of marketing: product, price, place promotion.¹³⁵ Thus bans on zero rating may be bans on free speech. To be sure, "deception" and false advertising are not allowed, but the freedom to make an offer in the marketplace is as fundamental as speech itself.

¹³³ See forthcoming paper by Roslyn Layton for a comparison of net neutrality rules in 20 countries.

¹³⁴ "Advertising and the First Amendment," *LawPublish*, accessed August 5, 2015, <http://www.lawpublish.com/amend1.html>.

¹³⁵ McCarthy, Jerome E. (1960). *Basic Marketing. A Managerial Approach*. Homewood, IL: Richard D. Irwin.

This argument¹³⁶ will soon have a test in court. It holds that a broadband provider is no different from a newspaper, printing press, or broadcaster from a constitutional perspective. Broadband access is speech just as print or broadcast.

The distinction between technical and commercial reasons is irrelevant for the First Amendment. Indeed for a network, technical and commercial concerns are one in the same. Thus some net neutrality rules against how operators price and manage their networks may be unconstitutional. Legal scholar Fred Campbell explains¹³⁷

It is constitutionally irrelevant that the content-related restrictions in the open Internet rules also implicate business concerns.¹³⁸ The Court has long held that the commercial nature of the press does not deprive it of First Amendment protection, because there is no constitutionally permissible way for the government to separate the business interests of the press from its editorial function.¹³⁹ The existence of “commercial activity, in itself, is no justification for narrowing the protection of expression secured by the First Amendment,”¹⁴⁰ in part because even early printers were capitalists who were regarded as innovators.¹⁴¹ The combination of the profit motive “with other motives that were self-serving and altruistic, and even evangelistic, at times,” played a role in the “rapid expansion of early printing industries.”¹⁴² The editorial and business interests of the press have always been inextricably intertwined,¹⁴³ and the Press Clause has always forbidden government attempts to unravel them.¹⁴⁴

While the court may recognize an argument for common carriage, this does mean free carriage. Thus an operator’s discretion of how to charge for delivery is protected as well. Price differentiation is enshrined in almost every country through the post, with priority, regular, and reduced rate postage. It is understood that there is social value to give mass media and books a lower price of delivery because it supports communication, expression and the exchange of ideas.

Moreover Rather than declare such practices inherently harmful, however, the Supreme Court has upheld the government’s right to engage in paid prioritization of the mail for the purpose of subsidizing particular forms of speech.¹⁴⁵

In this way, it is no different for some Internet content to get the “book rate” or the zero rate. It supports overall expression.

In some respects the zero rated Internet.org, a platform for Facebook and locally relevant content for developing countries is not unlike the very original conception of zero rating, a term¹⁴⁶ that comes from the international trade and tax policy of the European Economic Community in the 1950s. When value added tax (VAT) was imposed on goods distributed in what is today the European Union, certain “essential” items such as food, medicines, books, equipment for the disabled and were “zero rated” and not taxed. While it probably makes net neutrality advocates wince, Facebook is an essential for the Internet.

¹³⁶ Fred Campbell, “CBIT Amicus Brief: FCC Net Neutrality Rules Violate First Amendment,” *Center for Boundless Innovation in Technology*, August 6, 2015, <http://cbit.org/blog/2015/08/cbit-files-amicus-brief-fcc-net-neutrality-rules-violate-first-amendment/>.

¹³⁷ Fred Campbell, *The First Amendment and the Internet: The Press Clause Protects the Internet Transmission of Mass Media Content from Common Carrier Regulation*, 94 NEB. L. REV. ____ (2016). See also <http://cbit.org/blog/2015/06/cbit-white-paper-how-net-neutrality-invites-the-feds-to-ignore-the-first-amendment-censor-the-internet/> at p 32-33, 51

¹³⁸ *Bigelow*, 421 U.S. at 818, quoting *Ginzburg v. United States*, 383 U.S. 463, 474 (1966). (“The existence of ‘commercial activity, in itself, is no justification for narrowing the protection of expression secured by the First Amendment.’”).

¹³⁹ See *Tornillo*, 418 U.S. 241, 258.

¹⁴⁰ *Bigelow*, 421 U.S. at 818, quoting *Ginzburg v. United States*, 383 U.S. 463, 474 (1966).

¹⁴¹ Elizabeth L. Einstein, *The Printing Press as an Agent of Change*, p. 22 (Cambridge University Press, 14th printing, 2009).

¹⁴² See *id.* at p. 23.

¹⁴³ See *id.* (“It seems more accurate to describe many publishers as being *both* businessmen *and* literary dispensers of glory.”).

¹⁴⁴ The Press Clause has not been amended since its initial ratification.

¹⁴⁵ *Hannegan v. Esquire, Inc.*, 327 U.S. 146, 151 (1946).

¹⁴⁶ Harry Wallop, “General Election 2010: A Brief History of the Value Added Tax,” April 13, 2010, <http://www.telegraph.co.uk/news/election-2010/7582869/VAT-a-brief-history.html>.

But it is not the case that all expression must be treated equally. “The Supreme Court has rejected the notion that the government has an interest in equalizing the relative ability of individuals or groups to speak.”¹⁴⁷ “[T]he concept that government may restrict the speech of some elements of our society in order to enhance the relative voice of others is wholly foreign to the First Amendment,”¹⁴⁸ notes Campbell.¹⁴⁹

Marketing and advertising to support the provision of service, content, access to users has been a quintessential part of every medium, whether radio, TV, print, search engine, social network, music streaming. Classified advertisements, a forerunner to search advertising, supported Benjamin Franklin’s *Pennsylvania Gazette* in 1728. The telephone newspaper of the 1890s, a forerunner of today’s mobile broadband, was funded both by spoken ads and price differentiated subscriptions for different audiences.¹⁵⁰ Radio broadcasting would have been unknown in America had it not been for content providers’ zero rated programming.

To stimulate purchase of receivers from the De Forest Radio Company, owner Lee De Forest negotiated the Metropolitan Opera and the Columbia Graphophone Co., to zero rate their music content. Free broadcasts helped introduce America to this new medium. Thereafter it became commonplace for consumer product companies to sponsor radio shows. This was a norm for American television. Revenues from advertisers were used to expand radio and television networks and technologies. Unsurprisingly Internet companies such as Google, Facebook, Yahoo and others have availed themselves to zero rating style business models, so that their users need not pay money for the service. Google zero-rates search and its other products. Facebook sponsors its platform with advertising.

Marketing is also important to promote devices. Imagine if AT&T had not been able to make an exclusive distribution agreement with Apple for the iPhone in 2007. Nokia, in fact, invented the smartphone in 1996 but never got the credit because it failed to communicate to customers in a compelling way.¹⁵¹ Consumers were able to take advantage of the iPhone in spite of its high price of \$399 because AT&T through its subsidy of the phone created a form of zero rating of the cost of the phone to the end user. Additionally Apple could leverage the marketing and distribution of its device in AT&T’s subscriber network. Such a partnership was needed to launch the idea of the smartphone in the consumer imagination¹⁵²; it opened the door to other smartphones and fostered the development of mobile platforms on which WhatsApp, Spotify, Netflix, and other mobile applications have flourished. A zero rating like ban on partnerships between operators and device makers could have precluded significant mobile innovation.

Marketing is also essential for firms to differentiate themselves in the marketplace, and even more important for service based competitors which resell service on established networks. Consider the communication on the following two Chilean websites, one for Movistar and the other for WOM. Movistar, the market leader, features a bourgeois husband and wife in their properly appointed home with an offer of 150 voice minutes or 500 MB of data for a set price. WOM, an MNVO, features two girls at a party sharing a lemon wedge by mouth with the offer of 30 GB of data for \$25. These are two different customer sets with different needs and budgets. Marketing is essential for each operator to acquire customers.

¹⁴⁷ See *Citizens United*, 558 U.S. at 350.

¹⁴⁸ *Buckley v. Valeo*, 424 U.S. 1, 48-49 (1976).

¹⁴⁹ Supra

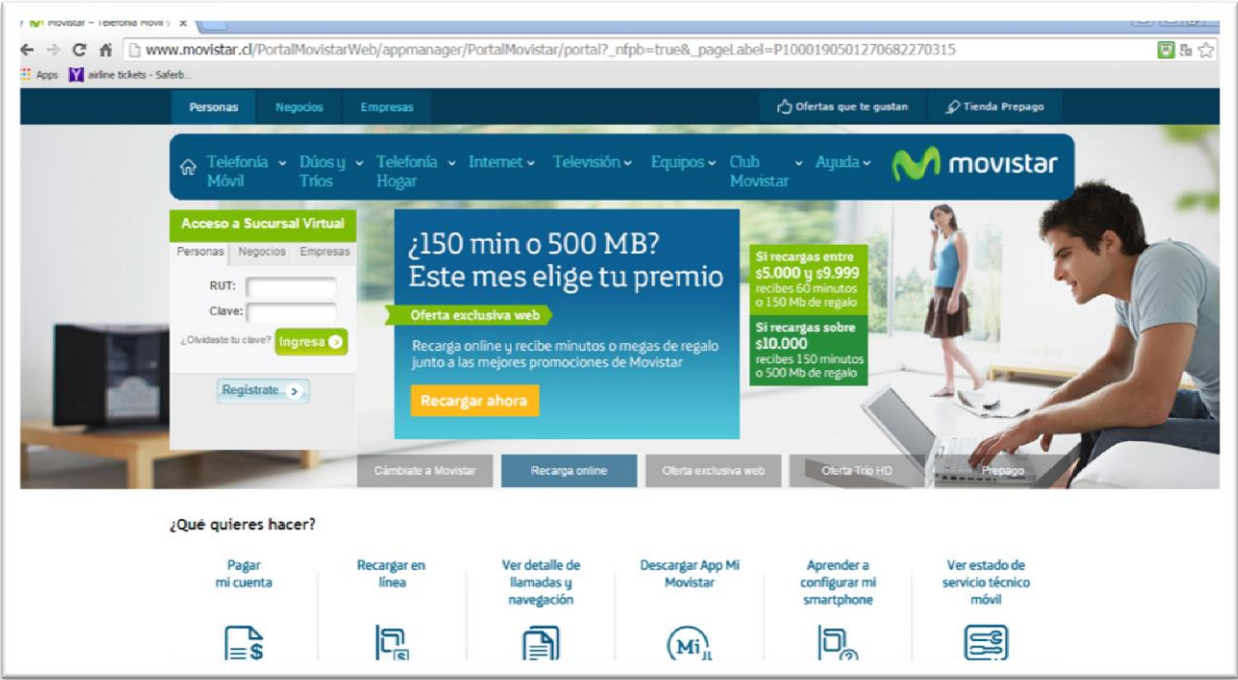
¹⁵⁰ Roslyn Layton. “What the 19th Century Telephone Newspaper Tells us about Today’s Internet.” August 13, 2015.

<http://www.techpolicydaily.com/internet/telephone-newspaper-todays-internet/>

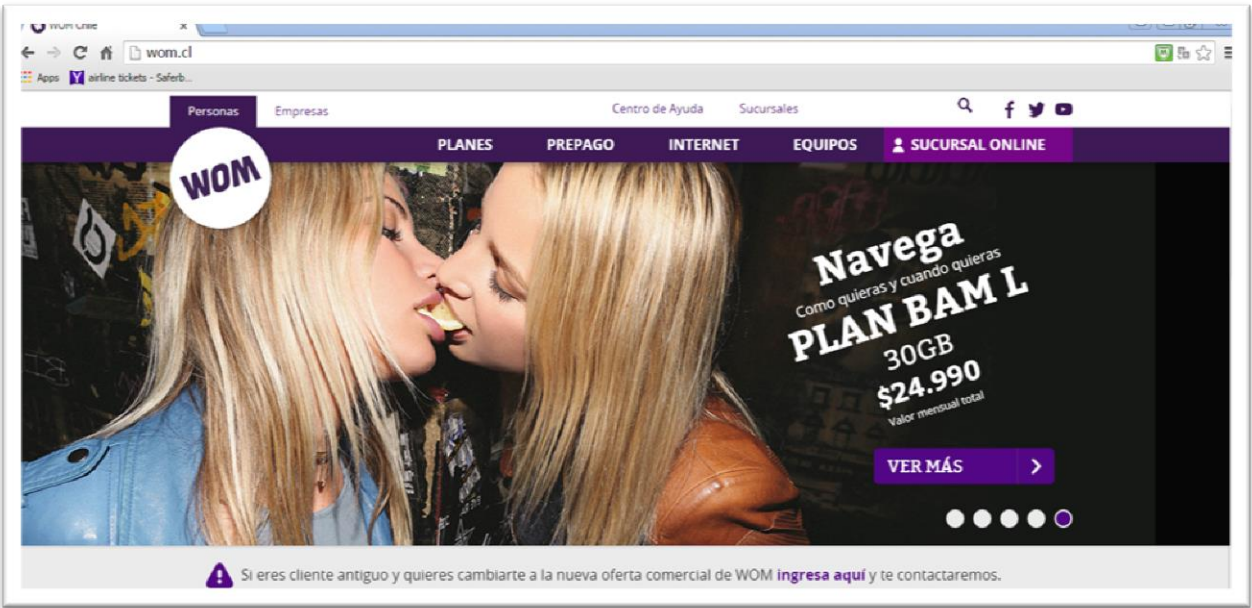
¹⁵¹ “Nokia 9000 Communicator Detailed Specs,” *PDADB.net*, accessed August 14, 2015,

http://pdadb.net/index.php?m=specs&id=879&view=1&c=nokia_9000_communicator.

¹⁵² Strand Consult iPhone Report, 2009. <http://www.strandconsult.dk/sw3896.asp>



Movistar's Homepage



WOM's Homepage

Why the War on Zero Rating

This paper has examined the arguments for and against zero rating. It examines the key concerns about zero rating and attempts to find evidence for the claims. It reviewed the leading database of financial information for mobile operators and the leading database of application performance in mobile app stores. We conducted primary research in the three countries that ban zero rating. The case studies highlighted a number of similarities in the countries, including strong net neutrality laws, reluctant regulators, and the role of powerful advocacy organization to make zero rating illegal. While this demonstrates the success of these organizations to activate the media and policymakers, the case studies highlight the lack of analysis, evidence, and investigation in net neutrality policy, showing that each country is highly idiosyncratic in its rulemaking.

Through a variety of quantitative and qualitative techniques, we have attempted to find evidence for the harm that zero rating allegedly creates to consumers and competition.

In short, we cannot find evidence that shows that zero rating creates harm. We find that zero rating has a negligible but not negative impact on the marketplace.

Zero rating is one of a number of marketing techniques that mobile operators need to employ in competitive marketplace. For some operators in the study, their outcomes are the opposite predicted by critics. Some operators that deployed zero rating actually lost market share, and their zero rated applications were insignificant in terms of rank. We do not believe that this is a result of zero rating, but rather that zero rating is the result of the operator's competitive situation. To rephrase Baumol, operators don't deploy zero rating because they can, but because they must.

It is strange however that a service that has such a minimal impact should be so maligned. It is also inconsistent that zero rating is rampant across Internet applications and services (e.g. advertising supported games, search, social networks, music streaming etc) but arbitrarily prohibited on mobile broadband services.

We noticed that in the three countries that advocates have a goal to make flat rate internet subscriptions and high data caps (preferably no data caps) the norm, if not the law. While such offers have appeal, they necessarily mean low volume users, whether by choice or budget constraint, are forced to pay more for internet access. Meanwhile high volume users, those who want to stream movies or play video games, pay proportionately less for their service. Such a situation would be a particular boon to companies such as Netflix, whose streaming service takes up a disproportionate share of mobile traffic. Thus it appears that campaigns against zero rating are waged as a way to pressure mobile operators to change their pricing in favor of users who consume high volume video and against those users who have never used the Internet but want an incentive to try.